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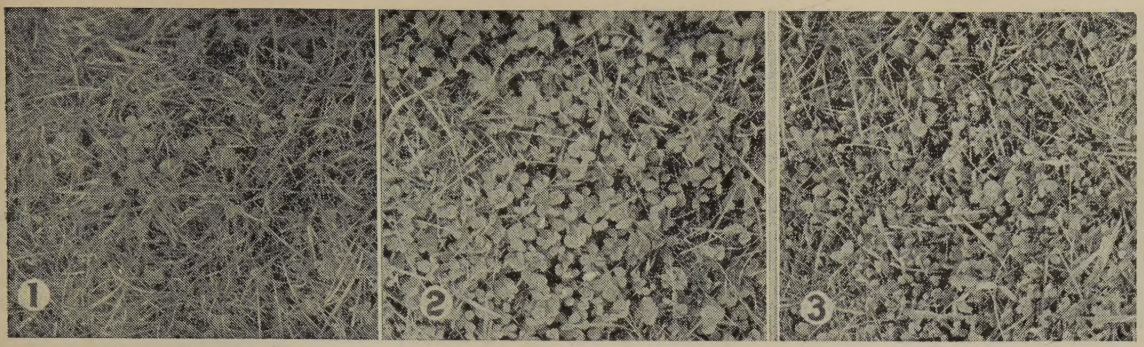

On many soils Serpentine-super has proved as efficient as super, and its use enables 35% more of the farm to be top-dressed with the ration available. Illustrations show:—No. 1—Untreated; No. 2—Super + lime; No. 3—Serpentine super + lime. The super and Serpentine super were applied at the same rate per acre.

being gradually improved, as well as areas already in good grass. Whether to spread the fertiliser available over all, or to restrict top-dressing to certain fields only, is rather a perplexing problem. Generally, however, the objective at present should be **maintenance rather than improvements,** and it is probable that the loss resulting from the failure to top-dress a good pasture may far more than outweigh the increase gained by top-dressing a poor pasture. Obviously, a 10 per cent. fall in production of a good pasture may represent considerably more feed than an increase of, say, 20 per cent. of a very poor pasture. At the same time it must also be remembered that the scope for deterioration in a good pasture is considerable, whereas in a very poor pasture, deterioration expressed in production may be almost negligible.

Where only two types of pasture—one very good and the other very poor—are concerned, the problem is relatively simple. If one must be penalised, then obviously it should be the low producer. On the majority of farms, however, the problem is by no means so easy and it may be difficult to draw any distinct line of demarcation. The question then arises whether to top-dress each field lightly, or to concentrate on certain fields. Although much must obviously depend on the quantity of fertiliser available, the latter policy is probably the wiser, since the labour involved is considerably reduced and each field top-dressed receives a worth-while quantity.

Consideration regarding which fields are to be cut for hay or ensilage; on which fields hay or roots will be fed out; which fields are used for night paddocks, and such other factors as affect a transfer of fertility must also be taken into account and may assist a farmer in reaching a decision.

Choice of Fertiliser Important.

Apart from economy in the application of fertiliser, the form in which it is to be used merits very careful thought. Considering that the ration of any particular fertiliser is based on its phosphatic content relative to superphosphate it may be worth while to choose, say, 27cwt. of serpentine-superphosphate in preference to 1 ton of straight superphosphate. In trials this fertiliser has generally given highly satisfactory results and on most soils appears to be as good as super on a weight-for-weight basis. This leaves a clear gain of 7cwt. of fertilising value over superphosphate for each

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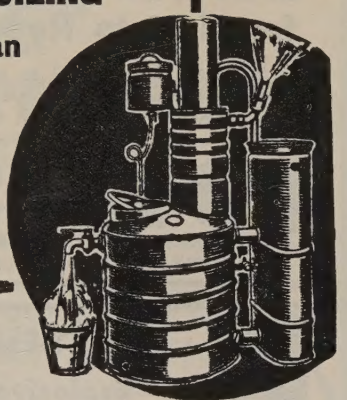

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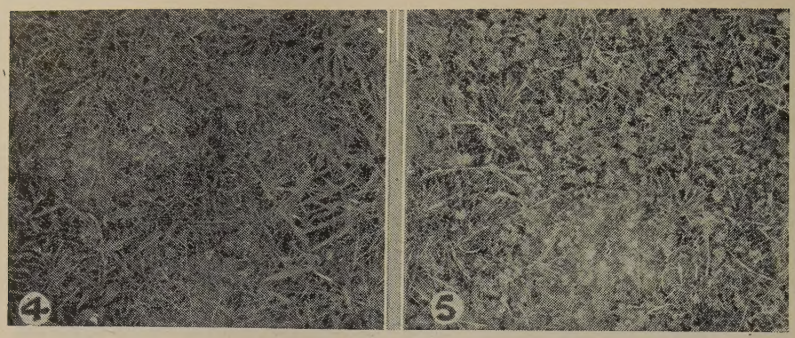

On lime-deficient soils, even lime alone can work wonders. Illustrations show: No. 4—Unlimed; No. 5—Limed at 1 ton per acre. Note how the liming has resulted in a vigorous growth of lotus major. Apart from its feed value, this legume improves the soil fertility and acts as a valuable pioneer in improving the sward.

ton purchased, and represents 35 per cent. more land which can be top-dressed with the ration available.

Value of Lime.

Although very real economies may be effected by a careful choice of the phosphatic fertiliser to be used, still greater economies can confidently be expected on many farms from the judicious use of lime. While it is true that there is no substitute for phosphate, and while it is admitted that the combined application of lime and phosphate may be more effective than the use of either alone, practical experience on many soils throughout New Zealand shows that even lime alone can work wonders. In fact, many farmers on lime deficient soils are finding that a good dressing of lime is producing better results than had previously been obtained by the use of phosphate alone.

Although the old warning against liming without manuring may well apply to conditions at home where the land is constantly being stirred with the plough, and where much of the lime used is a quick-acting burnt lime, the injunction loses much of its force when applied to grassland farming in New Zealand, and it is safe to say that few, if any, of the lime deficient soils can fail to benefit from a generous dressing of ground limestone.

If phosphates can be applied as well as lime, so much the better, but failing this, beneficial results can still be expected from lime alone, and moreover, the pasture will be in a better condition to benefit from phosphatic top-dressing in the future, when supplies are once more freely available.

Value of Farmyard Manure.

The present is a difficult time for the farmer. The shortage of fertiliser, combined with the shortage of labour, forms a double handicap which is hard to overcome. Nevertheless, wherever possible an effort should be made to supplement the fertiliser ration by making full use of animal droppings. This means that the harrows should be kept busy and yard sweepings utilised wherever this can be done.

In a war-time emergency every avenue leading to economy in the use of fertiliser must be explored, and every possibility exploited to the utmost.

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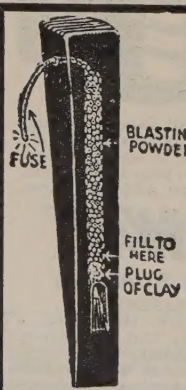

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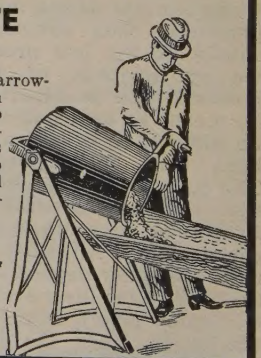

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SWEET BLUE LUPINS

— By —

M. A. BLACK, Crop Ecologist, Agronomy Division, Plant Research Bureau, and J. H. CLARIDGE, Seed Certification Officer, Fields Division, Department of Agriculture.

LUPINS are best known to the farmer as a means of supply of organic matter to the soil. For this purpose the Ordinary Blue lupin has been grown in New Zealand, chiefly in the wheat-growing districts of Canterbury, for many years. It has found a lesser use as a green feed for sheep, having proven of value in this respect on account of its high protein content.

The Ordinary Blue lupin is decidedly unpalatable, however, because of its very bitter taste due to the presence in the plant of a poisonous alkaloid. While the risk of death by poisoning is negligible in New Zealand when compared with that on the Continent of Europe (New Zealand-grown lupins seem generally lower in alkaloid content), this variety nevertheless is at a great disadvantage owing to the fact that sheep turned on to graze for the first time are more or less starving before they can be induced to eat. This drawback may be overlooked with mature store sheep, but assumes very important dimensions when lambs for fattening are fed on lupins.

Palatable to Stock.

Sweet lupins (of which there are two varieties—blue flowered and yellow flowered) are, owing to their extremely low alkaloid content, very palatable to stock, at the same time retaining the feeding value of the Ordinary Blue lupin.

Canterbury Trials.

Trials have been conducted in New Zealand during the past few years with the following varieties of lupin—Ordinary Blue, Sweet Yellow, and Sweet Blue—with a view to learning more of their behaviour under local conditions. Under Canterbury conditions the Sweet Blue has given a better performance than the Sweet Yellow, the latter being slower to develop than the former. This disadvantage under Canterbury conditions may not be so apparent in the warmer parts of the North Island, but as the investigation had particular reference to the cultivated lands of Canterbury, it is the Sweet Blue lupin which has earned prior consideration.

The trials have indicated the very high yield per acre which may be expected of Sweet Blue lupin in contrast with rape, and have drawn attention also to the possibility of growing this crop in association with other feeding crops.

Results of Trials.

A large scale feeding experiment conducted by Lincoln College in the 1941-42 season demonstrated very forcibly the value of Sweet Blue lupins in comparison with rape for purposes of lamb-fattening. The details of the trial appear in Agricultural Bulletin No. 154 of the Canterbury Chamber of Commerce published in May, 1942. The results may be summarised as follows:

a. An increased fattening capacity of 50 per cent. in favour of Sweet Blue lupins.

b. A live weight increase in four weeks on Sweet Blue lupins of 11.87 lb. per head, as against an increase on rape of 9.76lb. per head.

c. A total live weight gain per acre on Sweet Blue lupins of 356lb. and on rape of 195lb.

Sweet Blue lupins have been shown to possess a further advantage over brassica crops in their freedom from

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attack by diamond back moth, white butterfly, aphis, dryrot, and clubroot. On the other hand they are susceptible to damage by thrips, grass grub beetles and hares, while a disease known as pea mosaic (sore-shin) is liable to attack lupins.

In general, Sweet Blue lupins may be looked upon as a very valuable adjunct to the cropping programme of the sheep farmer occupying arable land.

Certified Seed Available

Supplies of seed of the Sweet Blue lupin are now available in commercial quantities, having been multiplied up from the small stocks originally imported into New Zealand. The superiority of the Sweet Blue variety over the Ordinary Blue variety lies in its freedom from the bitter alkaloid while neither the plants nor the seeds can be distinguished from external features. As a protection to intending purchasers, therefore, lupin seed of the Sweet Blue variety has this year received recognition under the Department of Agriculture's scheme of seed certification. This recognition has been simplified by the development by the Agronomy Division of a very sensitive test (originally discovered by overseas workers) for the determination of alkaloid content.

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WHY NOT SPIN YOUR OWN WOOL?

Is spinning worth while? This all depends on the individual point of view. From a severely practical angle, there is no denying that hand-spinning is a very slow way of preparing knitting wool when compared with the machine process, but it can be considered a pleasant, fascinating, and useful hobby. It has an added significance today, in that many types of knitting wool are virtually unprocurable. Hand-spinning helps to eke out available supplies, and knitting yarns with special characteristics can be produced. These yarns are eminently suitable for producing sea-boot stockings, jerseys, and balaclavas. There is a growing demand for information about spinning, and this article presents the necessary basic facts in a simple form.

——By——

J. E. DUNCAN,
Wool Supervisor,
Livestock Division,
Wellington.

THERE is no need to trace the history of spinning, the origin of which is lost in the mists of antiquity, but there can be no doubt that the first attempts at spinning were made by hand. If a well-teased bundle of wool is held in the left hand and a few fibres are grasped by the right hand and pulled away from the bundle while at the same time they are rolled between the thumb and fore-finger, it will be found that part of the twist thus imparted passes up into the loose mass of wool, thus entangling further fibres which may now be pulled out with the original ones. If the twisting is still continued as the fibres are drawn out, still further fibres are entangled and the process becomes a continuous one, twisting and drawing, working together and producing a length of yarn. It is obvious that only a short length of yarn can be produced by this means on account of the difficulty of maintaining the twisting process without undoing the twist already inserted in the first part of the yarn.

Until the early part of the sixteenth century the simple spindle was the only mechanical means available for producing a twisted yarn, and in action it was an exceedingly slow and discontinuous process. The spindle was essentially a round straight wooden rod having attached near its lower end a disc which served to give it added momentum, so that it could be spun like a top, thus imparting a twist to the bundle of fibres which were attached to the tip of the spindle. After sufficient twist had been inserted to convert the "sliver" or bundle of fibres into a yarn, this portion was wound on the shank of the spindle and the process then repeated by drawing a further sliver of the untwisted fibres and applying twist to this in the same way, and so on.

This process, with certain refinements and modifications, was in use for centuries, the main improvement being the application of a drive to the spindle by means of a large wheel and

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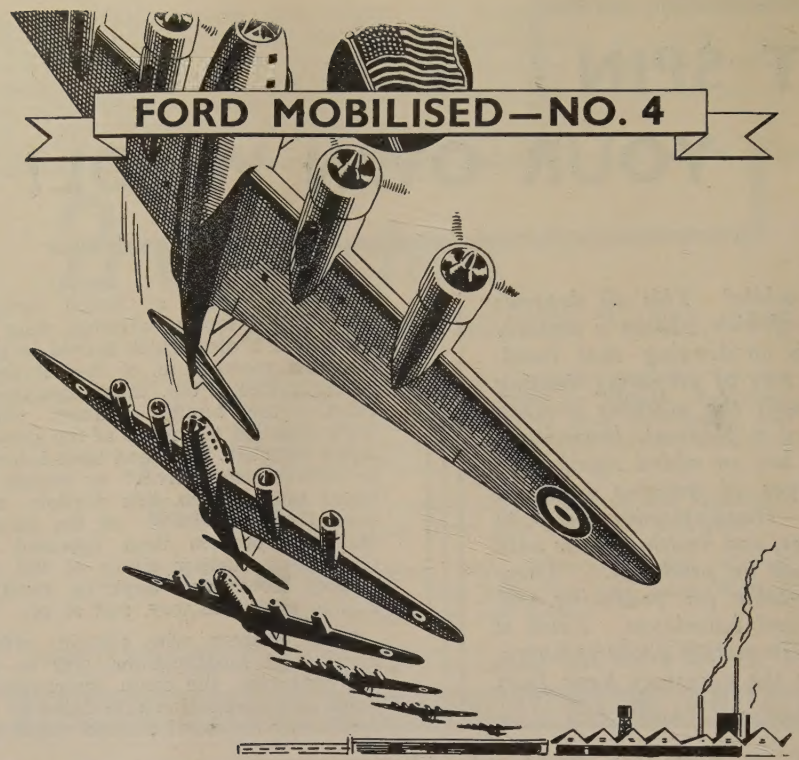

TOOLS FOR MR. CHURCHILL FROM FORD OF AMERICA

THE eyes of the Allies are turned to the United States — greatest manufacturing country in the World. And in deadly earnest America is turning ploughshares into swords.

Long before the United States became an actual belligerent, nine major war material projects were started by Ford of America. Greatest of these are the 31-acre aeroplane engine plant which is manufacturing 2,000-horsepower motors for "Flying Fortresses" and the 1,100-acre bomber plant from which 250 Consolidated 28-ton bombers will fly every month.

A recent announcement from Washington shows that Ford will shortly be the largest tank manufacturer in the United States. Other activities of Ford of America include the huge Aircraft Apprentice School, geared to turn out aircraft mechanics 3,000 at a time, and the Navy Service School which is training 1,400 sailors in mechanics, electricity, ship-fitting and carpentry.

Ford of America, like Ford of England, Canada, South Africa, India, Australia and New Zealand, is engaged on the greatest task in its 38 years of history.

UNTIL VICTORY is won, Ford has pledged its vast resources and manufacturing facilities to the service of the Allies.

When Peace is secured, the practical experience and technical knowledge gained from laboratory, factory and battlefront in the manufacture of mechanical war units will be fully applied in building future Ford products to standards of even greater quality.

In the meantime—despite a contribution of over 700 men to the Armed Forces—the New Zealand Ford Organisation, including 70 Dealers, remains intact to assist you to get from your truck or car the service and long life built into it, and to help maintain the vital motor transportation system which is essential to the Country's military and economic efficiency.

Ford

FORD WORKS FOR VICTORY!

FORD MOTOR COMPANY OF NEW ZEALAND LIMITED LOWER HUTT FP. 226

a belt or driving band. The wheel was turned by hand thus leaving only one hand free to manipulate the yarn. The process still remained a discontinuous one, however, as the spinner had to stop after each length of yarn was spun and wind it on to the shaft of the spindle.

It was not till about 1530 that the treadle spinning wheel, as we know it today, was invented. This was a great improvement in that firstly, it left both hands free, and secondly, that means were provided to wind the spun yarn on to a bobbin while spinning was taking place, thus making the process a continuous one. Before describing in detail how this was done, it would be advisable to consider more carefully the various steps leading up to the actual spinning.

Selection of Suitable Wool.

Although it is possible to spin any of the types of wool grown in New Zealand, the beginner would be well advised to avoid the extremes, i.e., the very long and the very short, the very coarse and the very fine. A suitable wool for a beginner to practise on is a fine crossbred, or a Romney wool, having a count of 48/50's and a staple length of 4-6 inches. In selecting a suitable fleece choose one, if possible, which is reasonably even throughout and open in character (avoid cotted or matted wool), of a good colour, and which contains a reasonable amount of yolk or condition, i.e., natural grease. It is important to make sure that the wool is sound and does not have a bad "break" or weak spot. A single staple or lock when held by the ends should withstand a fairly vigorous pull without breaking.

It is also possible to get very pleasing effects by the use of naturally coloured wool, such as black, brown, or grey, either by itself, or in conjunction with white wool to give a 2-ply marl effect. When a reasonable degree of skill has been acquired in spinning this type

of wool, other sorts may be tried, e.g., the finer and shorter halfbred and Corriedale wools, or even Merino, which is the finest wool grown in New Zealand.

Scoured wool, i.e., wool which has been thoroughly washed to remove the natural grease and dirt, is not suitable for spinning direct, it is too dry and harsh, and before attempting to spin it, it is necessary to apply a fairly liberal amount of oil.

Teasing.

This is quite a simple job and means simply the opening out of the individual staples or locks with the fingers into a fluffy mass. It will be found easier and quicker to pull the staples apart sideways rather than endways. Hold the bulk of the wool in the left hand and pull away small pieces at a time with the right hand. At this stage it is easy to remove from the wool any pieces of vegetable matter which may be present, such as thistles, burrs, etc., and also any very short or matted pieces of wool which would be difficult to card. These short bits of wool should not be thrown away, because although unsuitable for spinning they will be found useful for filling cushions after washing and teasing.

Unless the wool already contains a liberal amount of natural grease, it is advisable to add oil at this stage, as it makes the subsequent processing a good deal easier and more effective. The ideal is olive oil, but as this is at present both scarce and expensive a good substitute is a mixture of neatsfoot oil and kerosene, approximately equal parts. Mineral oils such as used for lubricating motorcars and machinery must be avoided, as they will not wash out during the later stages. The oil is put in a saucer and the fingers are constantly dipped in it as teasing proceeds. It is wise to leave the teased wool lying for a day or so before carding it, as this gives the oil time to become evenly distributed throughout the wool.

Carding.

The object of carding is to thoroughly mix and open the mass of wool fibres so that they can be easily spun to give a regular yarn. It is accomplished by means of the hand cards shown in Fig. 1, which are provided with a large number of fine hooked wire teeth, set in a leather or canvas base which is in turn attached to the wood. Carding is much easier to demonstrate than to describe, but it is hoped that the series of photographs, Figs. 2-10, will make the process reasonably clear.

Fig. 2 shows the commencement with the left hand card loaded evenly, the wool having been placed and distributed on its surface with the fingers. The most common mistake among beginners is to attempt to card too much wool at a time, and good results will

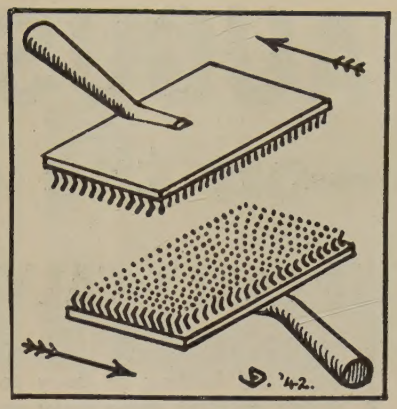

Fig. 1.—Hand cards showing bent teeth and direction of movement.

You Can't Reasonably Continue Using the Knife to Your Disadvantage!

Striking results are quoted in the Scottish Journal of Agriculture of an experiment with the two methods of castrating lambs—the knife and the bloodless castrator.

Ten pairs of twin half-bred male lambs were taken from a flock of Cheviot ewes. One twin was castrated with the castrator, the other with the knife. The live weight gain between castration and weaning was recorded for each lamb, and the gain made by one lamb castrated with the castrator compared with that of its brother castrated with the knife.

IN EVERY CASE, THE BLOODLESSLY CASTRATED LAMB MADE MORE RAPID GAINS, THE AVERAGE INCREASE BEING 59 lb., AS AGAINST AN AVERAGE OF 53 lb. FOR THOSE CUT WITH THE KNIFE, AN ADVANTAGE OF 6 lb. PER HEAD.

Seven single lambs castrated with the castrator averaged 64 lb. increase between castration and weaning, compared with an average of 58 lb. for seven cut with the knife, again an advantage of 6lb. per head. In addition to yielding a heavier lamb, the bloodless castrator gave a bigger lamb with bolder head and stronger bone, and in better condition.

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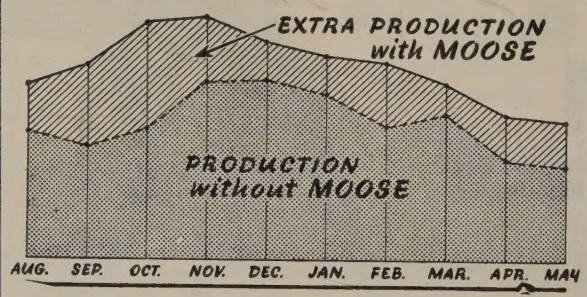
The whole season's production is dependent upon the feeding of dairy cows NOW. Until spring pastures come away cows are milking on winter grass, hay or silage, and unless high protein food is added to balance the daily rations they will drain their vital resources and production will suffer throughout the whole season. It is not easy to lift production once it has dropped; but the remedy is to feed Moose Oil-cake meal until pastures are adequate. MOOSE supplies the nutrients for milk and prevents the cows drawing on body reserves. Feed daily in boxes in the dummy bails 1 lb. Moose or more according to the cow's production.

The graph below shows the added production of butterfat throughout the season from a North Taranaki herd of 28 cows fed on Moose during the critical weeks after calving.



2 CALF REARING

The attention given calves NOW will determine their future stamina for butterfat production. Skim milk and whey supply valuable milk minerals for calf rearing, BUT they lack fat and protein.

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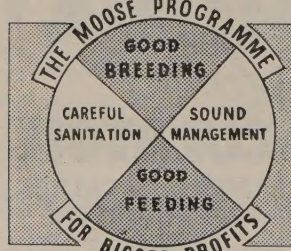
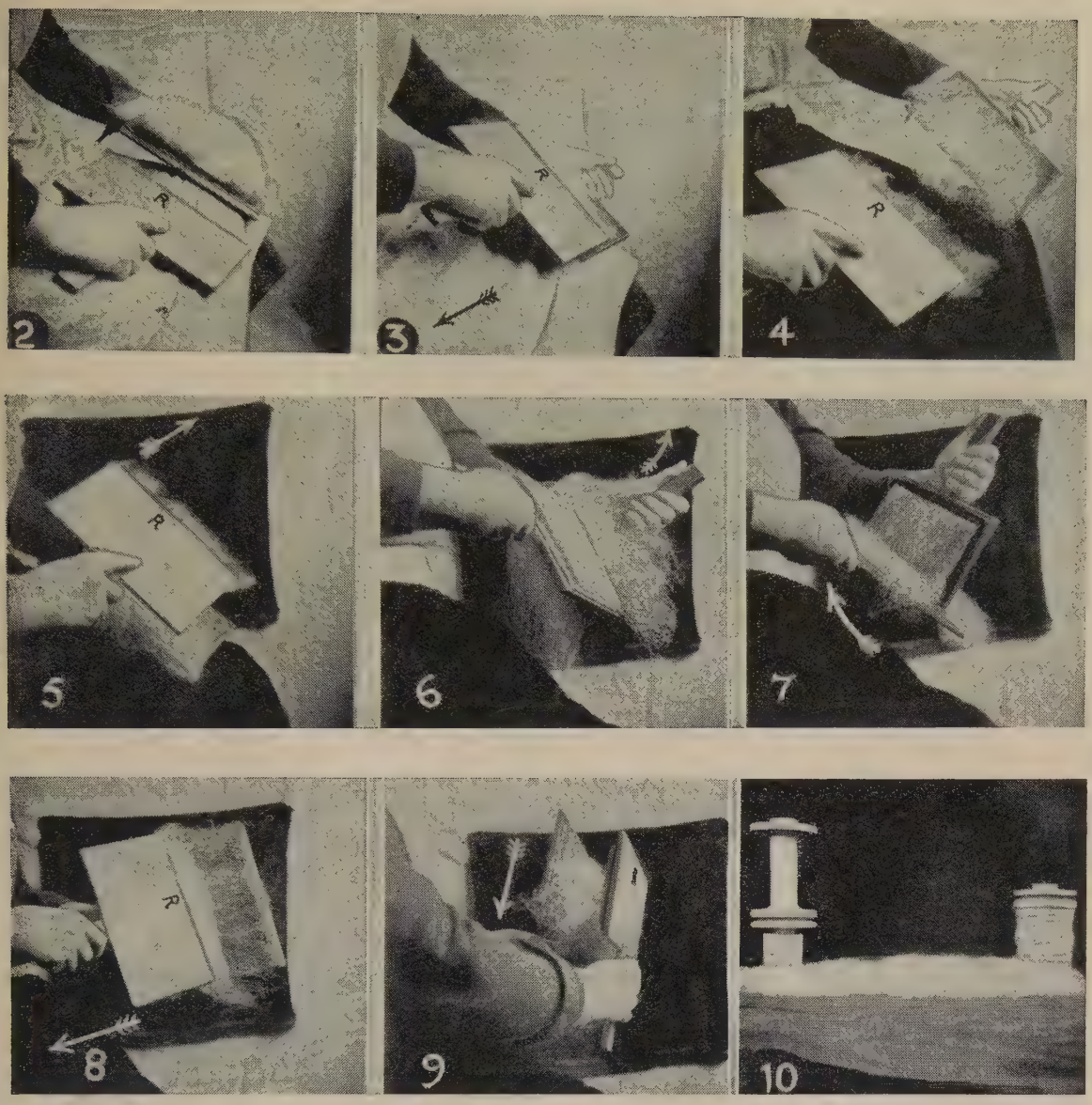


MOOSE

LINSEED OIL CAKE NUTS AND MEAL



Figs. 2 to 10.—Stages in carding; from teased wool (Fig. 2) to finished "Rolag" (Fig. 10, which also shows empty and full bobbins).

never be obtained when the cards are overloaded. Rather err on the side of too little to begin with. The photograph also makes clear the correct method of holding the cards, which should be marked right and left respectively, and always used in those hands for best results. It will be easier at first if the back of the left card is rested on the left knee to steady and support it.

In the first position the points of the hooks on the wire teeth are facing each other, so that when the right hand card is drawn longitudinally across the left (as shown in Fig. 3), the teeth do two things—they have a combing action on the wool on the left card, and they draw some of it away as it becomes entangled on the teeth of the right card. This process is repeated several times until the bulk of the wool has been transferred to the right card (care being taken to pull it well clear of the left card each time), which leaves a straight fringe of fibres protruding from each card.

This stage is illustrated in Fig. 4. When returning the cards at the commencement of the next stroke (Fig. 5), care must also be taken that the fringe is not doubled over, leading to tangling. This can be avoided by keeping the right card well up till it is in position to be lowered for the next stroke.

The next step is to transfer the partially carded wool back to the left card for further treatment, and this is

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accomplished as follows: The inner edge (next the handle) of the left card is held against the outer edge of the right card, and by an upward movement of the left card the wool is stripped off the backs of the teeth on the right card and transferred to the left card. Fig. 6 should make this plain.

Carding is now repeated several times more until the wool is "clear," i.e., free from all tangles and evenly opened out. In between each carding, it is transferred back to the left carder as described above.

It will frequently be found that a good deal of wool is being left behind on the left carder, and it is desirable that this should be completely transferred to the right, which is done in exactly the opposite way to that described above, viz., the inner edge of the right carder is applied to the outer edge of the left carder, and by an upward motion of the right card the wool is stripped off the left and transferred to the right card. (See Fig. 7.)

When the wool has been sufficiently carded it has to be stripped off **both cards.** This is done as shown in Figs. 8 and 9. Hold both cards upright and apply the outer edge of the right card to the outer edge of the left. A downward pull of the right card will now strip most of the wool off the left. (Fig. 8.) Now reverse the process by pulling the left card downwards to strip the wool off the right. (Fig. 9.) The wool should now be sufficiently loose to be shaken free of the cards—but if not, a repetition of the above process and a little judicious "wangling" will free it.

Remember that thorough carding is more than half the battle in good spinning.

Making the "Rolag."

After the soft loose mass of fibres has been shaken free from the two cards, the orthodox procedure is to let it fall on the back of the left card and then roll it with the back of the right card until it assumes the form of a loose cigar-shaped roll 7-10 inches long and 1-1½ inches in dia-

meter. A typical "rolag" is shown in Fig. 10. Some cards are not flat on the back, owing to the projecting manner in which the handles are fitted, and do not lend themselves to the making of rolags. In this case, and probably for all beginners, it is easier to make the rolag by rolling the wool on a table or on the floor with the hands.

The test of a good rolag is to hold it up to the light, it should present a uniform open appearance throughout with no dense parts or patches of short, tangled, or knotted fibres. These all lead to difficulties in spinning and imperfections in the yarn, and if numerous, indicate that further carding is required. If there are only a few they can easily be picked out and removed with the fingers.

Spinning Direct From Fleece

With a suitable fleece having an open staple or lock formation it is quite practicable to spin direct from the fleece without the intermediate stage of carding—but it is difficult to get the same uniformity in the yarn, and the whole process requires keener concentration and attention on the part of the spinner. Beginners would be well advised not to attempt spinning in this way until they have first mastered the more orthodox method.

Choice of Spinning Wheel

There are now available quite a number of different styles of spinning wheels, and several attachments designed to be run from sewing machines, either treadle or electric. As is usual with anything which quickly becomes popular, a good many of the machines being offered to the public are of rather shoddy construction, but at the other end of the scale are wheels which not only perform well but are so well finished that they have an additional artistic value as graceful pieces of furniture and will not look out of place in any sitting-room. The range in price is also considerable, from ten shillings for the simplest sewing-machine attachment to six or seven pounds for some of the wheels.

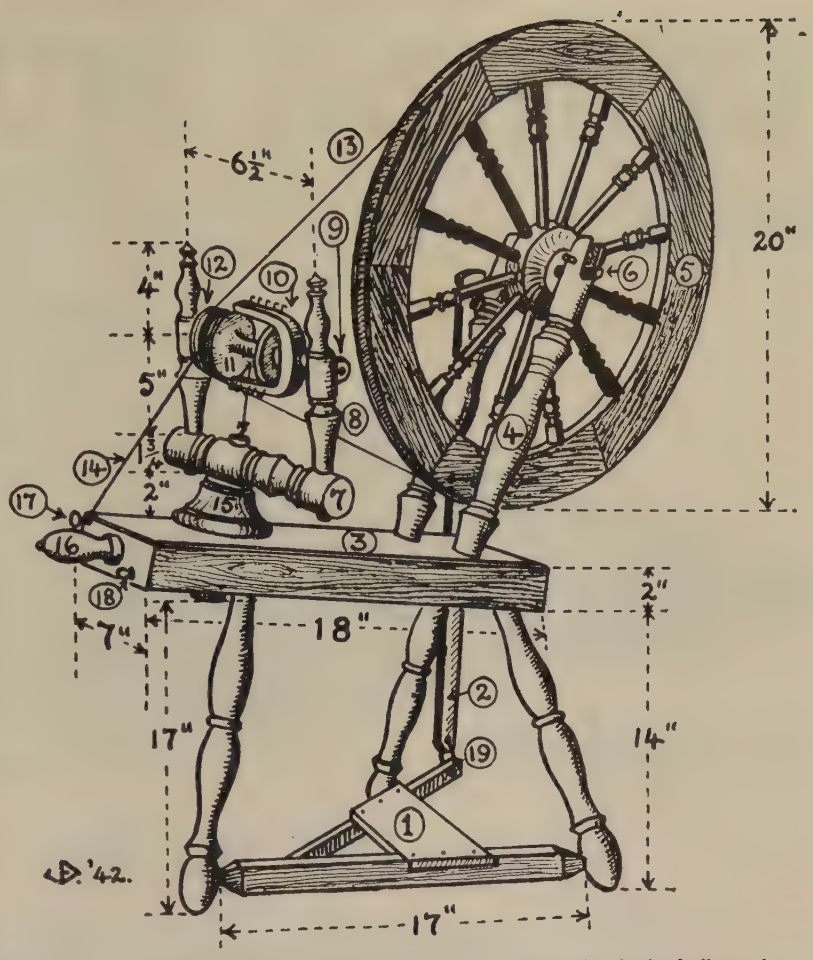

Fig. 11.—A typical spinning wheel. Names of parts and principal dimensions. (Dimensions of bobbin, flyer, etc., are not given here because they are identical with those given in the diagram in Fig. 13.) 1 Treadle. 2 Pitman rod. 3 Base-board. 4 Wheel-support. 5 Wheel. 6 Metal axle. 7 Horizontal bar. 8 Spindle support. 9 Leather bearing for spindle. 10 Flyer, showing hooks. 11 Bobbin. 12 Pulley driving spindle and flyer. 13 Driving belt or band. 14 Bobbin brake-band. 15 Spindle base. 16 Tension screw—for pulling spindle assembly away from wheel, to take up slack in driving belt. 17 Tensioning peg for bobbin brake-band. 18 Threader, made from hairpin fitted with handle.

In choosing a wheel the following are a few of the points to look for if there is an opportunity to examine it. For reference to the names of parts see Fig. 11.

1. The wheel should be reasonably true and well balanced, not warped or buckled.

2. It should revolve smoothly and evenly, requiring very little effort to treadle.

3. There should be some effective means of adjustment for the driving belt to take up any slack which may develop.

4. The flyer and bobbin should be capable of revolving rapidly and smoothly without undue vibration and noise.

5. The best design is that where the spindle revolves in thick leather bearings, as these are silent, oil-absorbent, and long wearing. Furthermore, the flyer and bobbin should be **between** these bearings; those designs which have them overhanging one bearing

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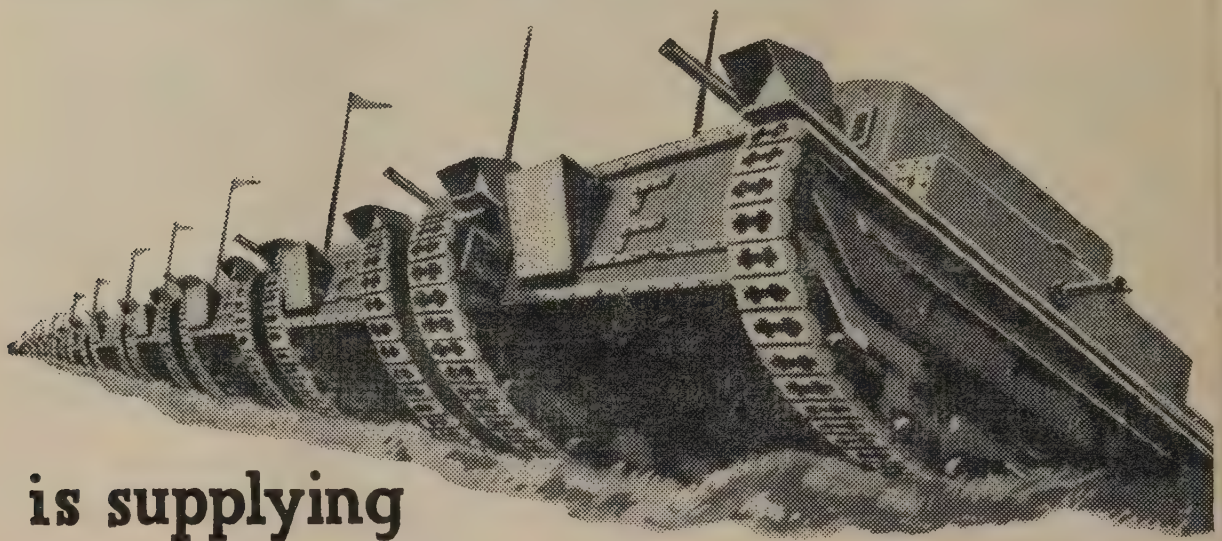

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★ *See 'TIME', the American News-magazine, of March 30, 1942, p.43.*

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In all machines there is included some feature to give the bobbin and the flyer different speeds of rotation. In the older machines this was achieved by two driving bands, one for the bobbin and one for the flyer, which were fitted with different-sized pulleys. This system gives no scope for adjustment and is inferior to the type where the flyer only is driven and pulls the bobbin round with it, but at a slightly lower speed on account of an adjustable brake-band which retards the bobbin. This brake-band usually consists simply of a string tensioned by means of a peg which is twisted, but make sure that whatever system is used it works properly, for on this adjustment successful spinning largely depends.

7. The bobbins, of which there should be at least four, should all be the same size, and should run truly.

The last four points also apply to the choice of an attachment for a sewing-machine, and working on exactly the same principles as the spinning-wheel, differing merely in its manner of drive.

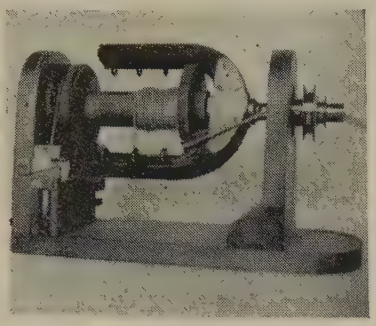

Fig. 12.—Sewing machine attachment built by author. Detailed dimensions are given in Fig. 13. Note how end support swings out on hinge when hook is lifted, making bobbin easy to remove. The leather bearings are pivoted on steel pins to facilitate this. N.B.—The bobbin brake-band terminates in a light coil spring, which gives smoother running and compensates for any inequalities in bobbin.

Fig. 11 is an illustration of a typical spinning-wheel, and Fig. 12 shows an attachment made by the author, for use with an electric sewing-machine, and this has given good results. For those interested in building their own wheel attachment, the plans given in Figs. 11 and 13 should be of help. For others concerned over-much with the appearance of the finished article and who may not have the facilities or the time to make a wooden wheel, a bicycle wheel (preferably one of the smaller sizes) will be found to be a useful substitute.

(To be continued.)

SUBSCRIPTION RATES.

The *Journal* is issued monthly. The subscription within New Zealand, which is payable in advance and includes postage, is 2s. 6d. a year. The overseas subscription is 5s. Subscriptions should be forwarded or paid direct to any office of the Department of Agriculture in the Dominion. Single copies, price 6d., are available from the Department of Agriculture, Box 3004, Wellington.

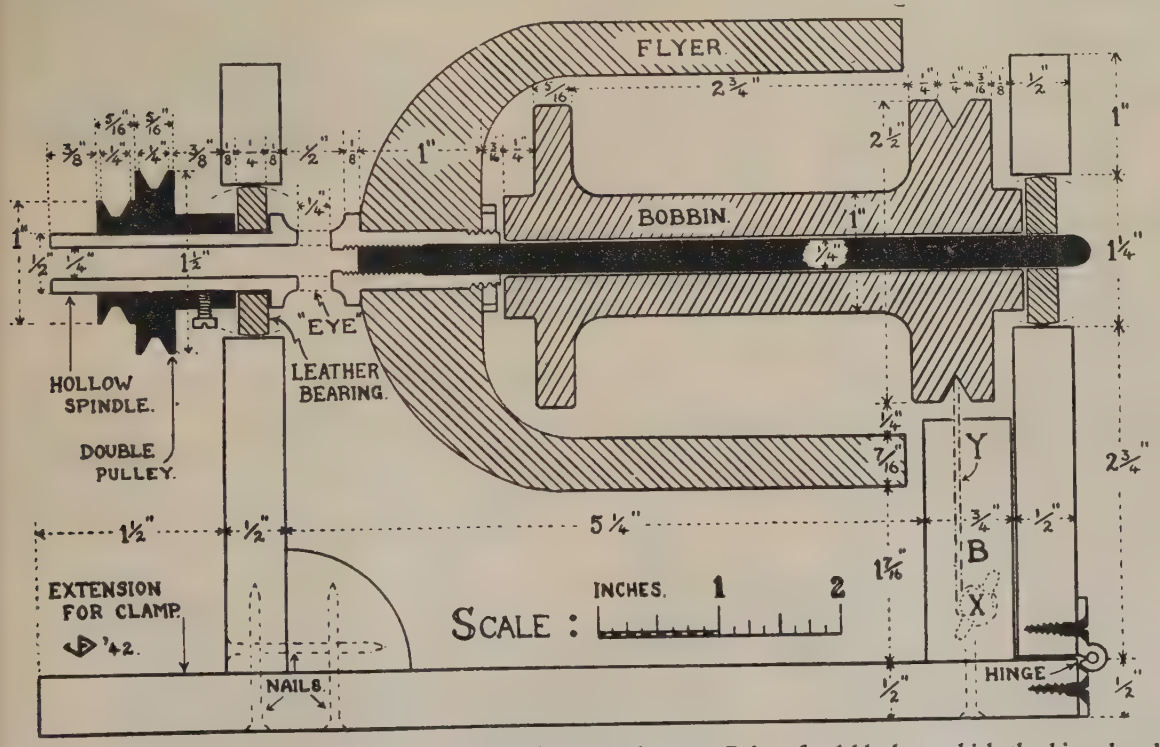

Fig. 13.—Longitudinal cross section of sewing machine attachment. B is a fixed block to which the hinged end support is fixed by a hook (see Fig. 12). Y is bobbin brake-band, and X is the tensioning peg for same. Width of base-board is 4½ inches.

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Functions of Primary Production Councils

A guide to District Councils of Primary Production regarding the procedure to be adopted in obtaining manpower for farms in expanding production and increasing the output of eggs and poultry has been issued by the Hon. W. J. Polson, Minister of Primary Production for War Purposes, and a summary of this memorandum forms the basis of this article.

THE following memorandum to District Primary Production Councils is intended as a guide to their proceedings and to give an indication of their duties. Its directions should be read in conjunction with a statement made by the Hon. W. J. Broadfoot, Minister of National Service, which is appended.

Duties of Councils Regarding Manpower

In future, Production Councils will be supplied with copies of ballot Gazettes and, on inquiry from the Secretary of the Appeal Board for their district will be able to ascertain the names of all farmers

——By——

Hon. W. J. Polson, Minister of Primary Production for War Purposes.

and farm labour in respect of whom appeals have been lodged.

Each executive officer should discuss these lists with his District Council and where appeals are not made and the Council thinks it desirable, a request should be made to the responsible official of the Appeal Board in the area who, in turn, will lodge appeals. All appeals should be watched so that mistakes may be rectified.

Where farmers have already been called up, but have not yet proceeded to camp, if, in the opinion of the Councils these farmers are required on the farms, they should contact the responsible officer (referred to above) of the Appeal Board, and arrange for the man's posting to camp to be deferred pending an examination of the case by the Appeal Board.

Where men have been returned by the Army the Council should investigate the position in regard to each of them and be convinced of his essentiality before lodging an appeal for his continuation on the farm. Those who are not appealed for must be returned to the Army and it is the Council's duty to see that this is done (by notifying the Appeal Board).

Where men who are regarded as essential have not been returned by the Army it is the Council's duty to make representations to the Secretary of the Appeal Board to have the men released when the procedure in regard to returned men, as above, will be followed.

Expanding Production

Councils are required to investigate conditions in their districts with the object of inducing owners to increase their production of such farm products as are recommended by the National Council and the Department, or that the District Councils believe essential. A survey should be made setting out in tabulated form the names of landholders who are growing all types of crops giving the total area proposed. The implements available should be ascertained, together with what labour

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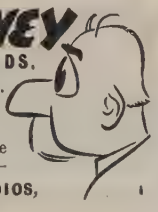

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will be required in addition to the farm staff and when it will be required. The schedule might take the following form:

Name.	Acres.	Crop.	Implements.	Labour required.	When crop harvestable.
John Smith, Bannockburn	10	Potatoes	Plough, harrows and one digger	3 men for digging and bagging.	Middle of April
Wm. Brown, Killiecrankie	40	Wheat	None	2 harvesters	February

From such information it might be possible to arrange for farm machinery to be used on more than one farm, and labour to proceed from one farm to another. Produce will be dealt with in the ordinary way, the Price Tribunal fixing prices on the following basis:

	SOUTH ISLAND.	NORTH ISLAND.
POTATOES (main crop, Suttons)	£8 per ton FORSI March delivery with increments.	On South Island Parity approx. £10/10/- with increments.
CAPE BARLEY ..	3/9 per bushel FORSI ..	4/3 per bushel FORSI.
OATS (White) ..	3/6 per bushel FORSE ..	Parity with South Island.
WHEAT	6/1½ per bushel FOBSI Jan./Feb./Mar. with increments	On South Island parity.
ONIONS	£8 per ton FORSI minimum ..	£8 per ton FORSI minimum.
MAIZE	—	5/3 per bushel FOBSI Gisborne, July basis. 5/6 per bushel on trucks Bay of Plenty basis, with increments.

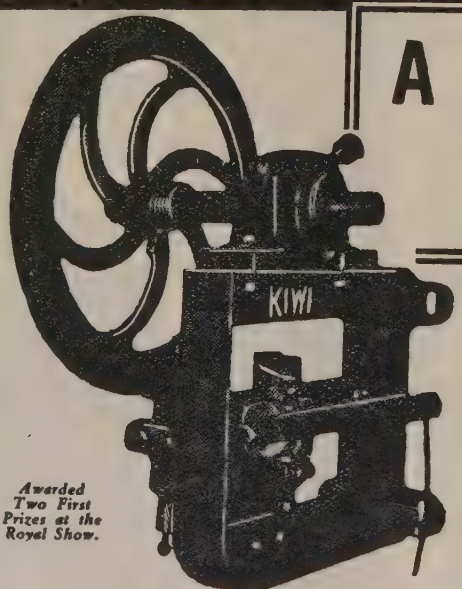
In the event of a surplus beyond the absorption capacity of the civil and military population the balance will be purchased at approved prices by the Marketing Department. These prices will be fixed later.

The swing back from cheese to butter will enable greater numbers of pigs to be fattened and it will be an important activity of Production Councils to see that sufficient grain is grown, such as barley, to take care of this.

Councils should also attend to the disposition of such labour, including Land Army girls, as will be organised to assist in various classes of farm work. The greatest use should be made of student labour during the holidays.

It will be necessary to organise seasonal labour such as shearing and harvesting, and it will be desirable to use the information gathered in the production survey about farm machinery, in zoning and spreading what is available so that it may be employed without interruption upon adjoining or nearby farms.

Included in the duties of the Councils will probably be the supervision of the farms of soldiers overseas. Now that the Councils have finance available they may be encouraged to tackle this work. Amongst other duties will be plans regarding housing of groups of workers, methods



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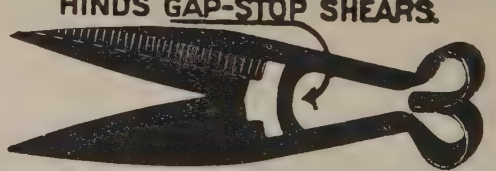

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of rationing such necessities as wire, schemes for overcoming the transport difficulties by co-operative methods, the conservation of jute bags which may be valuable and scarce, and so on.

In some districts maize production, vegetable production, and sweet potato growing must be increased and hay and chaff may be required in large quantities as well as grass and clover seeds.

Detailed information on all these matters will be supplied by the National Council of Primary Production almost immediately.

Eggs and Poultry

It is proposed to again appeal to farmers' wives to increase to the utmost the number of poultry in their yards. Through circumstances beyond the control of the Department the drive for increased egg production which took place two years ago failed because of the low prices ruling in the flush season and the shortage of suitable feed supplies. Every effort will be made to prevent this occurring again. The summer price of eggs has been fixed at 1s. 6d. South Island and 1s. 8d. North Island wholesale in all egg marketing areas. Winter prices have been and will remain high for a considerable period of time. The feed position will be safeguarded by the growing of barley and other grains at the prices referred to above. I would, therefore, again appeal, this time in the position of Minister responsible for war production, to housewives in both suburban and country areas to devote attention to this activity.

Reorganising the Councils

Those members who by regular attendance have shown interest in the Council's work are requested to continue, but as the Councils will now assume much greater importance and important duties will devolve upon them they should strengthen their positions by setting up district committees in areas where these do not already exist and providing that the chairmen of these committees become delegates to the Councils. These committees themselves will have responsibilities, particularly in connection with manpower appeals. New Councils should be appointed where the territory covered by existing Councils is considered too large (see recommendation below).

Representation on Councils

Many Councils are too unwieldy. Where existing Councils are being reorganised, or where new Councils are being set up, such Councils should not exceed more than ten in number, representation being one member from each of the following organisations:—Farmers' Union, A. and P. Society, Young Farmers' Club, Sheepowners' Federation, N.Z. Workers' Union, Department of Agriculture, Department of National Service, and three others to be **elected** who shall be representative farmers. District Committee representatives will ex officio be members of the Council. Each Fields Superintendent will ex officio be a member of every Council in his district.

A Secretary-Organiser should be appointed to each District Council, whose duties will be the general organisation and supervision of all work delegated to Councils and their committees.

It is not possible to recommend salary to be paid to Secretary-Organiser. Some will be more fully occupied than others. It is recommended that where a Secretary-Organiser is appointed full time he should receive a salary of £400 per annum. Where the position only necessitates the Secretary-Organiser's part-time services, remuneration in accordance with his service should be granted.

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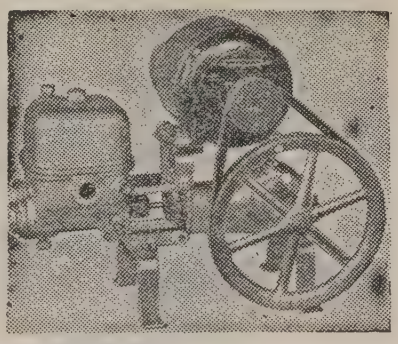

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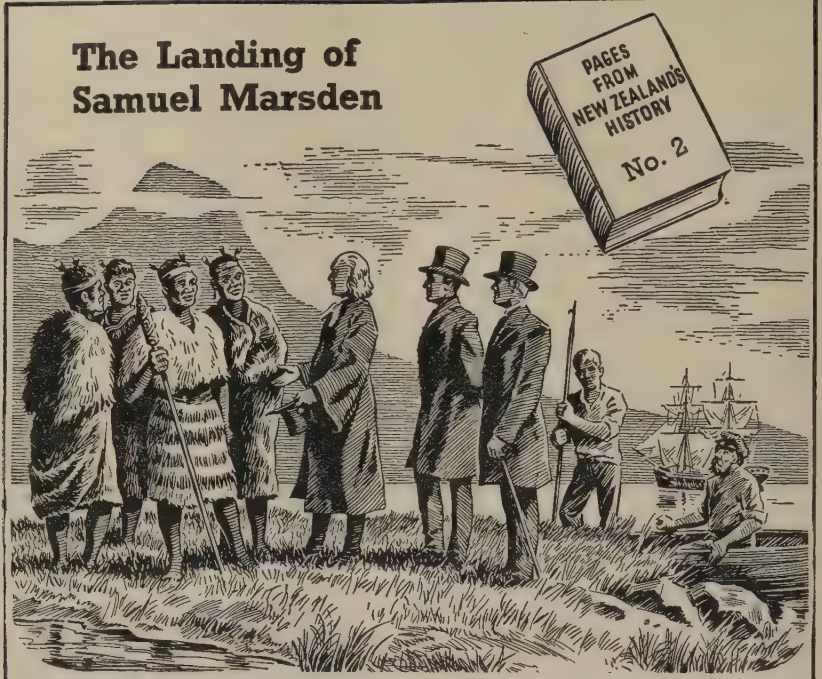

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Each Council should have a grant not to exceed £200 per year to pay for Secretary-Organiser's travelling expenses, and other reasonable expenses incurred by District Councils.

MANPOWER ON FARMS

THE following is a statement by the Hon. W. J. Broadfoot, Minister of National Service and Manpower as affecting the farmer:—

Asked to state the position regarding the farmer or farm employee who has been called up for military service and passed medically fit, the Minister of National Service (the Hon. W. J. Broadfoot) said that these men were to stay in their occupations pending a complete examination of the position generally. Accordingly, if an appeal had not already been lodged, any person or persons affected should without delay place the position before the local appeal board which would take steps to arrange a postponement in the meantime.

"Arrangements have also been made," said the Minister, "for the primary production councils to lodge appeals on the ground of public interest with the appropriate appeal board It is quite possible that some of the men concerned have insufficient experience to justify their retention on the farm or the production of the particular farm on which they are employed may be insufficient to warrant the retention of an experienced man. In such a case it is proposed that the man concerned would be transferred to another or more highly productive farm where his services would be more useful to the nation."

The Preservative Treatment of Fencing Posts

Contributed by
The New Zealand
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THE use of non-durable fencing-posts is a poor investment, as labour costs form a large proportion of total fencing charges. If treated with an approved wood preservative, however, the life of many such woods can be increased sufficiently to make their use as economical as naturally durable species.

The preservative is best injected into the wood under pressure, but for farm work, where pressure equipment is seldom available, creosote, introduced into posts by soaking them for some time first in hot and then in cold creosote, is an ideal preservative, and posts properly treated in accordance with the following recommendations will prove durable and economic in service.

General Practice

Preservatives injected into timber poison the wood substance, etc., upon which the decay-producing fungi live. Except in the case of a few porous woods, it is impractical or impossible to completely impregnate most forms of timber, and the general practice is to create an outer protective envelope around the untreated interior wood.

Experience has shown that, in general, increased durability is in approximate ratio to the amount and permanency of the preservative used. It is extremely difficult to penetrate the heart-wood of most timbers with preservatives, and for this reason natural round posts which contain an outer envelope, often of easily treated sapwood, are most satisfactory for treating.

Preparation of Posts

Only sound wood free from decay should be treated. If decay has once started it will not necessarily be destroyed by the preservative, but will

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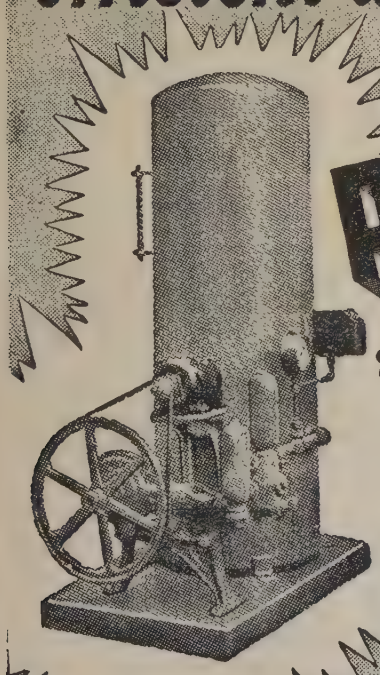

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probably extend and destroy the interior of the wood beneath the treated portion. A few simple precautions should always be taken to minimise the risk of timber being infected with decay before treatment.

The first precaution is to bark and peel all round timber immediately after felling. This will retard attack of fungi and wood-boring insects, which quickly commence their destructive activities beneath loose pieces of bark where moisture tends to collect and conditions are favourable for rapid decay. Thorough barking is also important to ensure the maximum penetration of the preservative, as even small patches of bark will often effectively prevent penetration. Thus, in peeling posts of many exotic species, such as pines, cedars, etc., care should be taken to remove all thin inner bark, particularly from that portion of the post near the groundline. If this operation is not carried out carefully a piece of bark which has been missed is liable to be subsequently knocked off, thus exposing poorly treated wood. Effectiveness of preservative treatment depends on maintaining an unbroken area of treated wood entirely around the post. The posts are most easily barked in the early spring.

A second precaution is to ensure that the timber is thoroughly seasoned. Creosote cannot readily enter wood the cells of which are already filled with water. Fence posts can be satisfactorily seasoned by open crib-piling in a shady yet exposed locality where, in particular, there is ample circulation of air both beneath and through the whole pile. Damp ground should be avoided, and the soil around and beneath the piles kept free of all living and rotting vegetation during the whole process of seasoning. A minimum seasoning period of six months is recommended, but it is difficult to give a general recommendation, as species, location, season of the year, and size of posts are all of importance in determining how long it will take posts

to reach the seasoned condition. If facilities are available, a good test for seasoning is to weigh a few posts at intervals. When the weights remain fairly constant during two weeks of good seasoning weather, the posts can be considered dry enough to treat. One of the major objectives in thoroughly seasoning the wood is to ensure that no no further shrinkage and splitting occurs after treatment, thereby breaking the envelope of treated wood and affording entry for decay-producing fungi to the interior untreated wood.

It is also advisable to cut the tops of posts at a slight angle to prevent lodgment of rain water, a precaution especially necessary in the case of rapidly-grown exotic pines, etc.

Choice of Preservative

Toxicity, or the poisoning property of the preservative, and its permanence are the factors largely governing the value of any preservative, and are possessed by a group of oils known as coal-tar derivatives, of which creosote is the most valuable and economical. A suitable grade known as the British Engineering Standard Specification Oil can be purchased in bulk from the larger local tar by-products manufacturers. Other coal-tar derivatives, known as carbolineums, are also obtainable, but, in general, such oils are proprietary preparations.

Due to their slightly better penetrating power, the claim is often made that mere brushing or dipping applications are sufficient to increase the life of the wood for long periods, but users are warned that sufficient absorption and penetration are secured only by appropriate soakings. Tar is not recommended on account of its relatively poor penetrating powers and dirtiness, while if applied to green timber, it causes decay to develop more rapidly than in untreated wood.

Construction of Treating-Plant

The simplest equipment consists of two 90-gallon steel drums measuring approximately 3ft. 4in. in height and 2ft 4in in diameter. An end is cut out of each drum, one of which may be used for the hot bath and the other for the cold. They may be mounted on bricks and a proper flue provided, or placed over a fire-pit dug in the ground. Means should be provided for preventing the access of rain water into the tanks, but on account of the fire danger the equipment should be removed from the immediate vicinity of buildings.

How to Creosote Posts

The open tank process is the most suitable and effective method of treatment for farm use. The posts are first soaked in a drum of creosote maintained at a temperature of between 180deg. and 200deg. F., which causes the air in the wood cells to expand and some of the air and moisture to be

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driven out. On transferring the posts to the cold creosote bath the expanded air contracts and creosote enters the timber. Owing to the poorer penetrating powers of creosote at normal atmospheric temperatures and the deposition of solid material on the posts making them dirty to handle, it is essential to keep the temperature of the cold bath above 90 deg. F., preferably as near 100 deg. F. as possible. The hot-and-cold effect may be secured by leaving the posts in the hot creosote and allowing it to cool off overnight, a method which is peculiarly adaptable to the treatment of refractory timbers such as larch, which requires exceedingly long treatment. It is, however, not so economical of creosote with most other timbers, and if the temperature has been allowed to fall below 90 deg. F. during the night the oil should be reheated to 100 deg. F. before withdrawing the posts. The time necessary to leave the posts in the hot and cold baths varies with the species, and the penetration and absorption required.

The posts are placed with their butt ends in the hot bath and given the requisite hot treatment. They are then transferred to the cold bath for the required time. The tops are given the somewhat lighter treatment recommended by inverting them in both the hot and cold baths. The top and butt treatment, of course, may be combined by the use of a single tank in which the whole of the post may be immersed and treated as recommended for the butt section. In heating the creosote the level of the oil should be kept about 6 in. below the top of the drum and its temperature always below 200 deg. F., otherwise it may boil over and catch fire, with disastrous results to the plant.

For that portion of posts and other timbers in contact with the ground the whole of the sapwood should be impregnated. If, due to difficulty of penetration or over-absorption of creosote, this is not secured, a penetration of from ½in. to 1in. may be accepted, although

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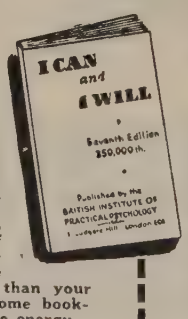

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considerably less may represent the maximum which can be secured with larch and other refractory woods. For that part of the post out of the ground a somewhat lighter penetration than that recommended for the butts of the posts is satisfactory. Under these conditions a post will absorb on the average from ½ gallon to 1 gallon of creosote. When tests for penetration are made with an augur, etc., care should be taken to fill the whole with creosote and to plug it with a piece of creosoted wood.

The recommended treatments for the various species are set out in the accompanying table.

Species.	Butt.		Top.	
	Hot Bath.	Cold Bath.	Hot Bath.	Cold Bath.
	Hours.	Hours.	Hours.	Hours.
Pines (Pinus spp.)	1	½	½	1
Eucalypts (Eucalyptus spp.)	3	2	1½	1
Poplar and willow (Populus and Salix spp.)	3	2	1½	1
White birch (*Betula alba*)	2½	1	1½	½
Wattle (Acacia spp.)	5	2½	2	1
Hinau, tawa, kamahi, rewarewa, tawhari, matai	5	2	2	1
Mountain and silver beech (*N. cliffortiodes* and *N. Menziesii*)	8	4	3	1
Larch (*Larix decidua*)	8	12	4	6

Durability

Unfortunately, there are few authoritative records available regarding the durability of treated timber in New Zealand. The New Zealand Railways creosoted rimu and white pine sleepers over thirty years ago, and many of them lasted as long as fourteen years—some over thirty years—before removal, which was due to mechanical failure rather than decay. In fact, some of the sleepers removed were subsequently used for fencing posts.

Since 1922 the New Zealand State Forest Service has installed a variety of treated exotic pine, larch, eucalypt, etc., and native timber posts and kept them under observation. Some of these posts, treated according to the recommendations made herein, are still perfectly sound, while untreated or lightly treated posts of the same species decayed after only a few years. The tests also demonstrated the necessity of a fairly substantial top treatment for non-durable species, as with the copious rainfall occurring in most parts of New Zealand untreated portions of posts out of the ground rapidly decay from the top downwards.

Generally speaking, if the posts are given treatments according to the foregoing recommendations, a life approaching twenty years can be confidently expected.

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Fractures of the Pelvis

Contributed by the
LIVESTOCK DIVISION

THE Veterinarian in field practice finds it quite a common occurrence to examine and prescribe for various fractures of the pelvis in most species of animals.

Dropped Hip

Fractures of the external angle of the ilium or hip prominence, is a common fracture in horses and cattle. The usual cause is a direct violence on the hip as a result of trucking, running through a doorway or narrow space, striking a post or falling on the haunch. The fractured prominence is pulled downwards by the powerful muscles attached, leading to the marked deformity commonly called "dropped hip." Locally there is a contusion of varying severity and the displaced fragment can be manipulated below its normal position.

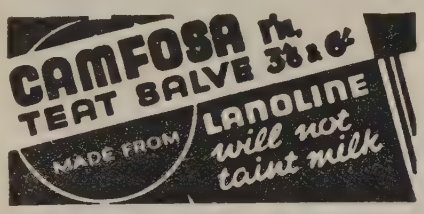
Although there is a distinct lameness for the first two days, this fracture is not serious, as recovery by the formation of a false joint is the usual sequence. Occasionally the fracture is compound, in which case the fracture is complicated by an open wound at the site of injury. This wound may lead to suppuration and necrosis of bone. It is wise then to consult a qualified veterinarian who may decide to surgically remove or scrape the affected bone.

Pelvic Shaft

Fracture of the shaft of the pelvis — the connection between the hip-joint and the hip prominence — is a fracture which causes greater deformity and a more severe lameness. There is great difficulty in taking the limb forward and a grating or clicking noise called "crepitation" can be heard when the animal moves. A diagnosis can be made by placing the hands on the hip and pin bones and gently rocking the animal. The condition can be determined more accurately by a Rectal or Vaginal examination. The prognosis for this fracture is serious, as there is a severe permanent lameness if the bones do not knit. In breeding animals the pelvic cavity is often restricted to make breeding impossible. The fracture itself is sometimes complicated by injury to important nerves, blood vessels, or organs that line the pelvis. Paralysis of one or both hind-limbs, death from internal haemorrhage, or peritonitis are likely sequels.

Hip-joint Cavity

In fractures of the hip-joint cavity there is no deformity but the lameness is very severe and incurable. The animal makes no attempt to move or flex the affected limb. Considerable swelling develops externally and internally around the hip joint and several associated muscles and ligaments are ruptured or torn. It is humane to



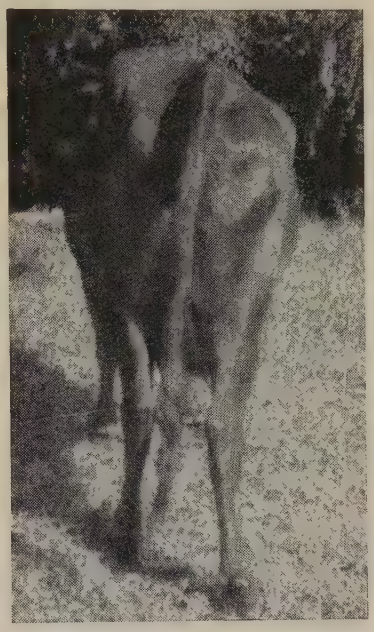


Fig. 1.—Fracture of the floor of pelvis in aged cow showing complete separation of the two halves of the pelvis, causing raised and lowered hip and pin bone on left side and vice versa on right side.

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Fig. 2.—**Another view of cow in Fig. 1, showing the marked deformity with the raised and lowered hip and pin bones on left side. This cow developed a false joint and after careful treatment was able to complete a good milking season.**

destroy the animal with this type of fracture.

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Fracture of Floor of Pelvis

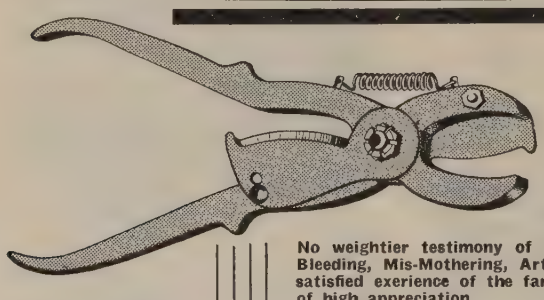
A fracture of the floor of the pelvis is occasionally identified by the veterinarian. It is usually caused by violent slipping outwards of the hind legs, by falls, or by the traction of a large foetus during parturition. There is sudden lameness and stiffness of the hindquarters and many animals go down in a spread-eagle position, being unable to rise. With this type of fracture there is usually little displacement although the displacement is very marked if complete separation of the two halves of the pelvis takes place. (See illustration). Recovery depends on the amount of displacement.

Dogs and Cats

Pelvic fractures in the dog and cat are of common occurrence being usually caused by car accidents or by falling from a height. Complete recoveries are usually obtained as it is easy to immobilise the affected region.

In all pelvic fractures associated with severe lameness or marked deformity it is advisable to consult a qualified veterinarian who can determine the exact place and severity of the fracture and advise accordingly.

—M. C. ARMSTRONG, B.Agr.Sc., B.V.Sc., Veterinarian, Masterton.



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Rings for sows can be made by rolling a piece of copper, brass, or galvanised wire, No. 8 gauge, round an inch water pipe to form a close spiral or spring, and cutting all the turns with a hack-saw along the length of the pipe. Each ring then comes off the pipe as part of a spiral with its ends slightly apart. Before inserting the ring, pull the ends further side-ways and close the ring until the ends overlap about one-eighth of an inch. Then insert the ring, and with two pairs of pliers bring the ends together. The previous closing of the ring keeps the ends sprung together, and if the burr is removed from the hack-saw cut the joint is just about invisible. It is best to put the sow in a bail to do the job. It is less satisfactory to tie her up. The cutting of the rooter muscle is satisfactory while the nose remains sore, but the nose usually heals up and rooting then begins again. The cutting is not recommended, whereas the use of a ring on the bull ring principle has given satisfaction in all known cases over long periods.

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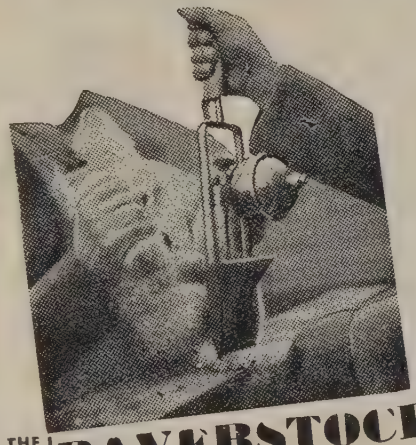

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J.A.

Death of Cats.

"M.W." (RAWENE):—

"I have lost a good many cats during the last five years, all suffering in much the same way as the cats 'H.W.' (Havelock) mentions in his letter in the 'Journal' for June. I have lost cats from six months to two years of age. They suddenly droop and lie about for a day or two. The next stage is violent attacks of vomiting a yellow frothy discharge containing long thin worms, and very soon after they die. One peculiar thing I have noticed is that they will go out and lie in a drain. I have even seen one lie in a dish of water. They do not seem able to drink. I have tried giving them small doses of areca nut. I do not think the trouble is caused by poisoning as all my neighbours lose cats in the same way, and there is no poisoning done in this district. Is it possible they would get some worm infection from rats or mice?"

LIVESTOCK DIVISION:—

"As mentioned in the 'Journal of Agriculture' reply for June under 'H.W.' (Havelock), the symptoms suggest what is known as feline enteritis or cat typhus. This disease is very acute, some animals dying within 24 hours of the first symptoms being shown.

The most common symptoms are repeated vomiting accompanied by great pain, the vomited material in the later stages being the colour of prune juice. Young cats are most commonly affected and the mortality is as high as 80 per cent.

Animals affected should be confined in a nest in the centre of a box filled with clean hay and given 5 grains of Sulphanilamide three times daily. As food, raw white of egg, a teaspoonful given every two hours, is advised —the egg white should **not** be beaten up, but cut up by criss-crossing with two sharp knives on a plate or saucer. As this disease is peculiar to cats, infection from any other source is not possible.

As advised in the June 'Journal,' specimens should be sent for laboratory examination in the case of any further deaths showing similar symptoms."

Advisory Service on Veterinary Matters.

Farmers are invited to submit inquiries connected with the health of their stock, and the replies will be published under this heading.

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MRS. D. K. S., KAIKOHE, writes as follows:—

"My experience over 12 years may help you and 'H.W.' (Havelock). After losing a great number of kittens and cats I called your Whangarei Veterinarian (in 1903, Mr. Maitland), also Mr. Bailey, Kaikohe. These two men came out and opened up three kittens (7 months old), which had all died within 48 hours. The trouble was a solid knot of worms (hard white, varying in length up to 4 inches)—I will send a sample—in the bowels causing a stoppage. The worms are rough and become tangled in the hair of rats and rabbits, it seems.

I tried arecoline and areca nut and several mixtures over a period of years and still most of our kittens died. About four years ago I tried oil of chenopodium, one drop for kittens three months or over, and two drops for cats, once every three or four months, as a preventative (not if they are ill) in a teaspoonful of milk. This has solved the problem, I am most thankful to say, and I feel the remedy should be given publicity."

Milk Fever and Paralysis in Dairy Cows

'J.A.J." (PUKEKOHE):—

I have had considerable trouble with my dairy cows each season, and it seems to me that there must be a more satisfactory way for treating these cows other than by drenching. I would be obliged if the Department would advise me on this matter and let me know if I could either inoculate the herd each season or treat the cows by injections just before they calve or immediately afterwards with some effective solution. Although I have had some success I am far from being satisfied with the treatment that I have been able to give.

My farm is only a small one of 22 acres carrying a beast to the acre, including dry stock, and the number of cows I usually milk is 17. One season seven of the cows took bad and I was able to save five, one of which was down for a week. Last year three were down and I was able to save only one, and this cow recovered on the fourth day. Of the remaining two at this season, one died at night and prior to dusk she was chewing her cud, and the other I found dead when I returned home from town. This cow showed no signs of sickness when I left her in the morning. Two have been bad this season, so far, and one died after being down for five days. The other recovered after being down for half a day. The last cow's death resulted definitely from pneumonia. She had made quite a good recovery up to the fifth day, but following a cold, wet night, she died. The pneumonia may have been caused with my drenching, but I am unable to say definitely.

None of my cows have become unconscious, and I seemed to have taken extra care when drenching, covering and packing the cows up. All the cows treated had the same symptoms and I treated them alike. The cows would become unsteady after calving and go down, although some were pre-

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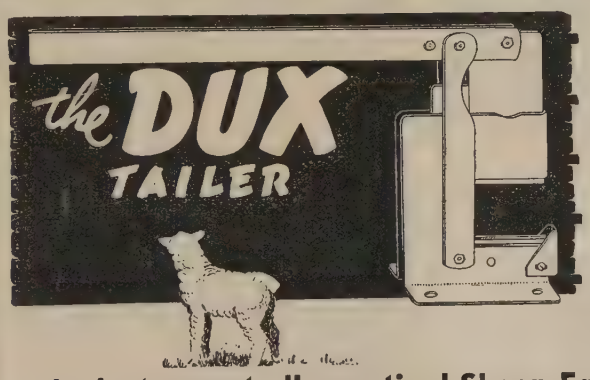

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vented from doing this with a calcium chloride drench and they recovered immediately. Others did not respond and collapsed, so I inflated their udders and was successful with one or two. I have saved others that have been down for long periods, as previously referred to, and they had, in addition to calcium drench and inflation, stimulating powders, massage of the back, and washing out with weak condys, the solution being as hot as I could comfortably bear my elbow in.

It is obvious to me that these cows have a combination of milk fever and paralysis and need either innoculation or treatment, which is more rapid in effect than drenching, as the cows are never the same after being down for a long period, and with my experience it seems correct to say that when they do collapse they are down for some days and in many cases for good.

LIVESTOCK DIVISION:—

In regard to injections as against drenching, this would not solve the difficulty of individual treatment of each animal according to the disease affecting the animal. When a cow has gone down with milk fever there are two types of treatment which may be carried out. One is the udder inflation treatment, which you have adopted with a good deal of success, and the other means giving an injection of calcium gluconate solution, either under the skin or into a vein. The intravenous injection is not likely to be undertaken, except by a qualified veterinarian. This injection is a second form of treatment, and there is no guarantee that if the injection was given it would prevent the disease, as its effect would soon pass off.

From a preventive point of view, it is advisable to continue giving the calcium chloride drenches, say, twice during the week before calving and once immediately after calving, no drench to be given when the cow goes down and becomes unconscious. At this stage there is every danger of a drench passing on to the lungs and causing a fatal pneumonia.

Regarding the treatment of paralysis after calving, either arising from the after-effects of milk-fever or occurring in a debilitated animal in poor condition, the main consideration is good nursing and management. In such cases I would strongly suggest that an endeavour be made to get the paralysed animal moved into a dry shed with plenty of bedding, where warmth and cover can be provided. The animal might be moved on a door or a sledge, and should not, if possible, be left in the open in inclement weather. A laxative diet should be provided, and the animal changed daily from side to side, always with plenty of bedding underneath. Here, again, it is difficult to see how injections would supersede other forms of treatment.

The best treatment to give such cases is a stimulant treatment. This comprises the application of a mustard plaster along the spine, the mustard being made up into a thin paste and thoroughly rubbed in along both sides of the spine in the region of the loins. Then apply a layer of strong paper and cover the loin with a warm rug.

Internally the stimulant treatment would consist of giving doses of ammonium carbonate and powdered nux vomica dissolved in a quart of cold water or cold thin gruel two or three times daily. Each dose would consist of half an ounce of ammonium carbonate and a quarter of an ounce of powdered nux vomica. Any chemist will make up a dozen of these powders for you, to be held in reserve for such a case.

It does not appear necessary to wash out the animals with Condy's fluid unless you have reason to suspect any septic infection at the time of calving.

SUBSCRIPTION RATES.

The *Journal* is issued monthly. The subscription within New Zealand, which is payable in advance and includes postage, is 2s. 6d. a year. The overseas subscription is 5s. Subscriptions should be forwarded or paid direct to any office of the Department of Agriculture in the Dominion. Single copies, price 6d., are available from the Department of Agriculture, Box 3004, Wellington.

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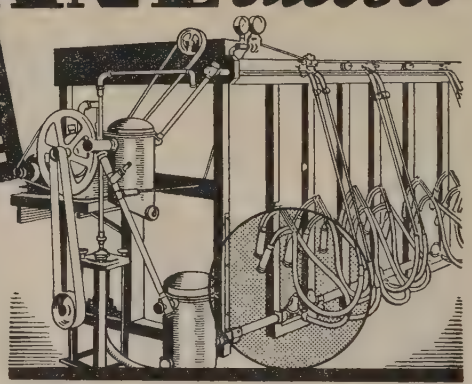

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..... J.A.

Curing and Tanning of Hides and Skins

Contributed by the Livestock Division.

THE following method requires a great deal of work, but it is a very good one for tanning large skins. It is, of course, good for small ones also:—

Soak the skin in warm water, stretch, and thoroughly scrape the flesh side. Then apply a paste made of equal parts of saltpetre, borax, and glauber salts moistened with water; fold the skin, flesh side in, allow it to lie for twenty-four hours, then wash in warm water. Next apply to the flesh side a mixture made by melting together 2 ounces of good soap, 1 ounce of washing soda, and ½ ounce of borax. Fold up the skin and allow it to lie for twenty-four hours. In warm weather watch should be kept on the skin when it is lying folded.

Make up a solution by dissolving 1 pound of alum and 2 pounds of salt in a paraffin tin full (4 gallons) of hot rain water or other soft water. When the solution has cooled to the point that it does not burn the hands, put in the skin and allow it to soak for twelve hours; take it out, wring it, and hang it on a rope or riem for another twelve hours. This last soaking and drying should be repeated till the desired degree of softness is obtained. The usual stretching, rubbing, and twisting completes the work.

Loosening the Hair

Hair on the hides may be loosened by several different processes. One method consists of painting the hair side with a 30 per cent. solution of sodium sulphide, thickened with lime. The skin is then folded up, hair side in, and left to lie for a few hours, when the hair can be removed by scraping. In another process (a cheaper one) the skin is immersed in a vessel containing milk of lime. The liquid is stirred daily, and after a few days the hair on the skin becomes loose.

Sheep, Lamb, or Goat Skins

Make a strong lather with hot water and soap (but use it when cold) and wash the fresh skin, being careful to get all the dirt out of the wool. It is best to plunge the skin right into the lather. After being well washed, the skin should be rinsed in clean cold water. Next dissolve 1lb. each of salt and alum in 2 gallons of hot water (if the skin be very large it may take more, but that is the proportion of the mixture), soak the skin in this solution for twelve hours, and then hang it on a pole to drain, flesh inwards. When well drained stretch it upon a floor or board to dry; stretching it several times during the process of drying. A good plan is to nail it wool downwards so that the air can pass underneath.

Before it is quite dry sprinkle it on the flesh side with 1 oz. each of powdered alum and saltpetre, and rub this well in. If the wool is then found to be firm on the skin it can be folded up and allowed to dry thoroughly, turning it over from day to day. Then scrape the flesh side with a blunt knife and rub it with pumice-stone or fine sandpaper. Plenty of stretching and

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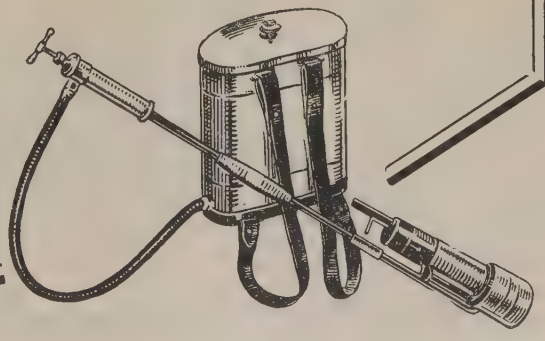

working is the secret of getting the skin white and pliable.

Curing Calf Skins

In one quart of water thoroughly dissolve 12 oz. alum, 4 oz. salt, 4 oz. oatmeal, 2 oz. saltpetre. Rub this mixture thoroughly all over the skin of the flesh side and fold (flesh to flesh). Allow the skin to remain for three weeks, turning once weekly.

The skin should then be exposed to the wind and air until it is half-dry when any flesh should be scraped off and the skin should be pliable; then dry thoroughly. It is then fit for use.

Making Green-hide Leather

After cleaning the hide and freeing from hair by the ordinary process, the stock is steeped or paddled in a solution of bichromate of potash and sulphuric acid, 5 per cent. of chromate to 2½ per cent. of acid on the wet weight of the stock. When this solution is thoroughly absorbed the stock should be a canary-yellow throughout. Then remove the stock from the bath and spread it out flat to drain overnight. Next immerse in a solution containing 7½ per cent. of hyposulphide of soda (ordinary hypo) and 2½ per cent. sulphuric acid, again estimated on the original wet weight. When this reducing-bath has completed its work the leather should be a pale green, and should stand boiling without going hard or curling up. This latter test is a proof of well-tanned leather.

This leather dried out is known as "chrome sole," and can be made waterproof by impregnation with paraffin wax. Care should be taken in the latter process to keep the wax at as low a temperature as possible while immersing the leather in it.

Removing Wool

Dissolve 1 lb. caustic soda in 2 gallons of water; add sufficient slaked lime to make a good thick paste; apply this with a brush to the flesh side of the skin; fold skin over lengthwise, wool side out; leave until next day; then pull wool off the skin. One must wear leather gloves when painting on the paste, also when pulling the wool off the skin, so as to avoid burning the hands. The skin must be thoroughly soaked in water a little while before the paste is applied, the degree of soaking depending on its dryness.

Curing Rabbitskins

Mix bran and soft water sufficient to cover the skins. Immerse them and keep them covered for 24 hours, then remove, wash clean, and carefully scrape off all flesh; then take 1 gallon of hot water and dissolve in this 1 lb. alum and ¼ lb. salt. Cool so that the hand may be put in. Immerse the skins for 24 hours, dry partially by rubbing, then immerse the skins for 24 hours in oatmeal and warm water; partially dry in the shade and finally rub until entirely dry. This leaves the skins like white leather and fit for use.

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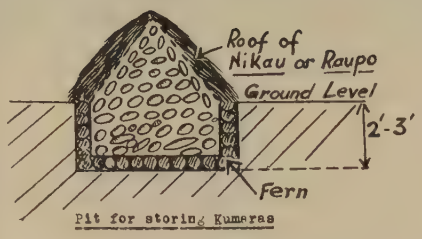
SUBSCRIPTION RATES.

The *Journal* is issued monthly. The subscription within New Zealand, which is payable in advance and includes postage, is 2s. 6d. a year. The overseas subscription is 5s.

Cultivation and Harvesting of Kumeras

KUMERAS are one of the most important farm and garden crops in North Auckland. Many farmers grow quantities of the sweet potato annually for home consumption and for sale, while the native population cultivate kumeras as one of their staple foods.



Pit for storing Kumeras

The kumera crop is comparatively free from disease and insect pests, while cultivation, once the crop has become well established, is reduced to a minimum.

The crop is usually harvested five to six months after planting in November. The tubers may, however, be used for domestic purposes within three months after planting. When harvesting, the tubers should be lifted very carefully and left exposed to the sun for three to four days in order to harden the skins. The tubers are then put into heaps for a week to a fortnight to allow sweating to take place. The heaps should be covered at night with the old vines or sacks to protect them from moisture.

For the storage of the kumeras, pits are usually made and the site selected should be on a dry ridge, preferably of a sandy nature, or in a shed with a fair amount of draught. The accompanying diagram shows the construction of a pit, storing of the tubers, and subsequent covering with nikau or raupo. It has been found that the best insurance against damage to the crop by rats is to construct pits which will hold at the most two to three cwt. of tubers.

—A. M. LEE, Fields Instructor, Kaitaia.

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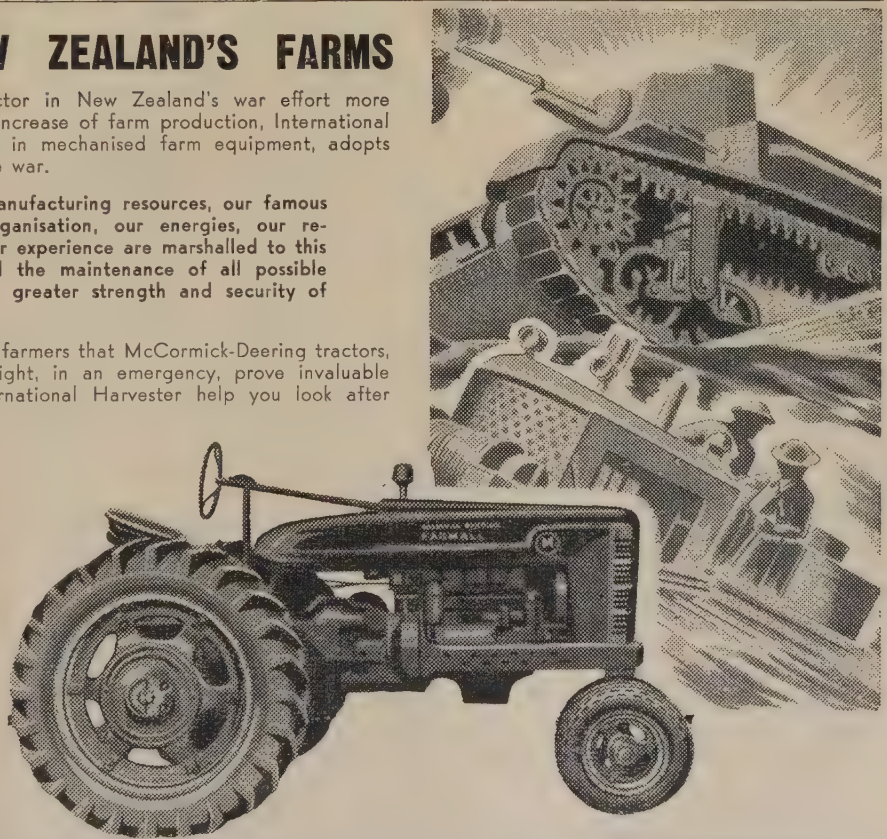

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Slaughterings of Stock

THE following returns of slaughterings of stock at meat-export slaughterhouses and abattoirs for the months of May and June have been compiled by the Livestock Division:—

District	Cattle	Calves	Sheep	Of which Ewes were	Lambs	Swine
North Island.						
Meat-export Slaughterhouses—						
Auckland	80,039	15,540	23,253	14,659	89,017	45,076
Poverty Bay-Hawkes Bay	24,943	976	48,986	30,891	115,136	5,274
Taranaki-Manawatu	41,678	1,432	14,671	10,800	122,578	29,006
Wairarapa-Wellington	18,699	572	18,481	10,963	108,741	4,749
Totals	165,359	18,520	105,391	67,313	435,472	84,105
Abattoirs	22,582	5,901	91,181	41,341	12,775	23,767
North Island Totals	187,941	24,421	196,572	108,654	448,247	107,872
South Island.						
Meat-export Slaughterhouses—						
Nelson-Marlborough	1,018	7	7,516	5,239	38,519	1,951
Canterbury	3,274	2,482	77,929	58,071	289,634	5,787
Otago-Southland	5,225	21	59,127	47,921	515,590	1,429
Totals	9,517	2,510	144,572	111,231	843,743	9,167
Abattoirs	10,796	1,996	50,562	27,738	6,334	8,260
South Island Totals	20,313	4,506	195,134	138,969	850,077	17,427
Dominion.						
Meat-expt. Slaughterhouses	174,876	21,030	249,963	178,544	1,279,215	93,272
Abattoirs	33,378	7,897	141,743	69,079	19,109	32,027
Grand Totals	208,254	28,927	391,706	247,623	1,298,324	125,299
Same Period, 1941— Meat Export Slaughterhouses and Abattoirs	174,488	27,317	504,217	335,799	1,473,513	145,613
Same Period, 1940— Meat Export Slaughterhouses and Abattoirs	229,058	35,974	789,319	528,670	1,394,099	150,477

Slaughterings of Pigs

The 31,256 pigs slaughtered at meat-export slaughterhouses and abattoirs during the month of June, 1942, were distributed in weight ranges approximately as follows:—

Up to 60 lb.	1,505
61-110 lb.	17,772
111-120 lb.	2,948
121-160 lb.	5,177
161-180 lb.	824
Over 180 lb.	702
Sundries	2,328

The grading of porkers is 82 per cent. of 1st quality and 18 per cent. of 2nd quality, and that of baconers is 81 per cent. of Prime 1's, 13 per cent. of Prime 2's, and 6 per cent. of 2nd quality.

In the different weight ranges of baconers the grading is as follows:—

111-120 lbs.	87%, 7%, 6% of P1's, P2's and 2nds.
121-160 lbs.	80%, 14%, 6% of P1's, P2's and 2nds.
161-180 lbs.	68%, 21%, 11% of P1's, P2's and 2nds.

Radio Broadcasts

RADIO Talks to Farmers will be given from Station 1YA, Auckland, at 7.15 p.m. on the following dates:—

August 24.—"Young Farmers' Club Session," Mr. E. B. Glanville, Provincial Secretary, Auckland Y.F.C. Council.

Augugst 31.—"The Growing of Maize," Mr. E. H.. Arnold, Instructor in Agriculture, Department of Agriculture, Dargaville..

September 7. — "Seasonal Notes," Fields Division.

September 14. — "Management of Hill Country," Mr. K. M. Montgomery, Fields Instructor, Department of Agriculture, Te Kuiti.

September 21.—"The Recognition and Control of Fruit Tree Diseases," Mr. A. T. Douglas, Orchard Instructor, Department of Agriculture, Auckland.

Pig Industry Broadcasts

UNDER the auspices of the District Pig Councils concerned broadcasts will be delivered in September as follows:—

1YA, Auckland, September 17, 7.15 p.m. — "Equipment That Makes Pig-keeping Easy," by N. Carter, Supervisor, Bay of Plenty District Pig Council.

2YH, Napier, September 10, 7.30 p.m.—"Housing for Pigs," by I. H. Owtram, Supervisor, Tairawhiti District Pig Council.

2YA, Wellington, September 8, 7.35 p.m.—"Whey Feeding," by C. H. M. Sorensen, Supervisor, Taranaki District Pig Council.

3YA, Christchurch, September 17, 7.15 p.m.—"Fitting Pigs to the Feed Supply," by W. H. McIntosh, Supervisor, Canterbury District Pig Council.

Orchard Notes

Control of Disease

FOLLOWING the completion of winter work in the orchard, early attention should be given to the disease-control programme. This programme may be divided into two phases:—

1. The elimination of the sources of infection and carry-over of disease.

2. The protection of the fruit trees and growing crop by the use of sprays.

The importance of the first phase is often overlooked; yet it may be considered as the base on which a successful programme of disease control is built.

The second phase requires attention at the present time. To plan the spray programme to best advantage it is necessary to have some knowledge of the sprays in general use.

Fungicides are those sprays for general use against fungi and insecticides are for general use against insect pests. The fungicides in general use in orchard practice are: elementary sulphur, polysulphide sulphur and copper sulphate sprays.

Elementary Sulphur

Sulphur is recommended for the control of mildews, rusts, and brown rot. Its efficacy is governed by the size of the particles, the toxicity of sulphur increasing with a decrease in particle sizes. The "colloidal" sulphur group comprises the most finely-divided sulphurs and is recommended as the only satisfactory form for general use.

It may be used alone in summer applications for the control of powdery-mildew, rust and brown rot, and in combination with lime sulphur comprises the most generally used fungicide for summer application against fungous diseases. The percentage content of colloidal sulphur varies in different products and dilutions should be made as under:—

Sulphur Content of Concentrate.	Dilution.
40%	2-3 lbs. per 100 gallons water.
25%	4-6 lbs. per 100 gallons water.

In combination with lime sulphur, half the above quantities are recommended.

Polysulphide Sulphur

The most generally used form of polysulphide sulphur is lime sulphur. It is considered that the toxicity of lime sulphur to fungi is due to its calcium polysulphide content, which therefore affords a unit of measurement upon which accurate dilutions may be based.

Lime sulphur is recommended for general use as a protective agent against fungous attack. For spring application dilutions of from 1—100 to 1—150 are recommended and for summer application dilutions of from 1—150 to 1—200. The present commercial practice is to standardise the product at a 15 per cent. polysulphide content and recommendations given here are based on this percentage.

Copper Sulphur

Bordeaux mixture is the most efficient of the copper sulphate sprays and is a combination in waters of copper sulphate and lime. Although the most efficient fungicide under New Zealand conditions, it is liable to cause injury to the foliage of stone fruits and to russet apple and clear skinned pear fruits and it is therefore not recommended for general summer use. It should be applied in early spring as a foundation spray on all pip and stone fruits at a concentration of 5—4—50, e.g., 5lb. Bluestone, 4lb. Lime, to 50 gallons of water. Its summer use is confined to the harder skinned pears at a concentration of 3—4—50.

The insecticides in general use in orchard practice are:—arsenates, oils, and certain plant extracts.

Arsenates

Arsenates are used with the object of covering fruit and foliage with a film toxic poisonous to chewing insects. The most efficient form is acid lead arsenate and the dosage recommended is 1½lb. of powder to 100 gallons of water. This should be applied throughout the growing season to combat codling moth, leaf-roller caterpillar, pear slug, bronze beetle, and other chewing insects.

The foliage of Japanese plums, apricots, peaches, and nectarines usually suffers injury if acid lead arsenate is applied and to avoid injury basic lead arsenate may be substituted at a concentration of 1½lb. plus 3lb. hydrated lime per 100 gallons of water.

Oils

Oils are used for the purpose of combating sucking insects such as scales, aphids, red mite, etc., and are divided into two types according to their constitution. Those prepared for use in the dormant season are known as "Winter" oils and those for use in the growing season as "Summer" oils.

As most oil concentrates contain appreciable amounts of water, it is necessary to make dilutions on the basis of oil content of the concentrate.

Winter oils are recommended for application in the dormant season for the control of scale insects, red mite and woolly aphis at a dilution of 1-16 where the oil content of the concentrate is 80 per cent. and 1-19 where the oil content is approximately 100 per cent. Summer oils are recommended for application during the growing period for the control of such soft bodied sucking insects as young scales, aphis leaf, hopper nymphs, and red mite at a dilution of 1-80 where the concentrate has an 80 per cent. content and 1-100 where the oil content is approximately 100 per cent.

Climatic Conditions

The commercial fruitgrowing areas differ in climatic conditions and suscep-

tibility of varieties to disease, therefore it is not possible to prepare a spray programme applicable to all districts. Modifications to the programme given here may be required and should be made in consultation with the local orchard instructor. All recommendations made are based on the use of produce certified by the Plant Diseases Division.

1. With oil content of concentrate 80 per cent., use dilution 1-16; with oil content of concentrate approximately 100 per cent., use dilution 1-19.

2. Required only where leaf-curl is particularly severe or where the first spray has been applied too early.

3. This spray is important in districts where blossom infection is severe. Where black or green aphis is prevalent, add nicotine sulphate 1-800. Where leaf-roller, caterpillar, or leech are present, apply basic lead arsenate, 1½lb. to 100 gallons water, plus 3lb. hydrated lime.

— *R. G. I. HAMILTON, District Supervisor, Horticulture Division, Auckland.*

SPRAY SCHEDULE FOR STONE FRUITS.

Period of Application.	Treatment.	Disease or Pest.
Dormant (1)	Winter oil, 1-16 to 1-19	Scales, red mite.
Bud movement of blossom buds	Bordeaux mixture, 5-4-50	Leaf-curl, shot-hole, bladder plum, brown rot.
Ten days later (2)	Bordeaux mixture, 3-4-50	Leaf-curl, shot-hole, bladder plum, brown rot.
Late pink (3)	Lime sulphur, 1-100 ..	Brown rot.
Petal-fall	Lime sulphur, 1-150, plus Colloidal sulphur (25%) 4lbs. per 100 gallons ..	Brown rot, shot-hole, leaf rust.
One month after petal-fall ..	ditto	ditto
Seven weeks after petal-fall ..	ditto	ditto
Five weeks prior to anticipated first picking	ditto	ditto
Two weeks later	ditto	ditto

Trials With Apricot Stocks

THESE apricot fruit tree stocks trials originated as the result of a request to the Director of the Horticulture Division by the Central Otago Fruitgrowers' Association early in 1927. The object was to endeavour to overcome the dying back of large limbs and mortality in mature trees, which had become a serious menace to apricot growers in Central Otago.

The trees, numbering 126, were planted out in the following five orchards:—In 1929, Messrs. Ferris and Gladstone, Alexandra; in 1930, Mr. W. P. Keddell, Galloway, Messrs. Hintons' Orchards, Ltd., and Messrs. R. S. Kinnaird and Son, Earnscleugh, Alexandra, and Mr. A. Wilson, Clyde-Cromwell Gorge, Clyde.

Soils were light loams of fair to good depth, well drained and irrigated; rainfall under 20 inches per annum. Cultural management sometimes took the form of intercropping with peas, tomatoes, etc., for a few years; then clean summer cultivation, or cropping perennial clover, mown periodically, and allowed to lie.

The varieties grown were Roxburgh Red and Moorpark on apricot, cherry plum, and peach stocks, also Moorpark and Tilton on Mariana. Although the trials have been closed, the plots are all in existence.

Roxburgh Red.—Growth: Good on all stocks, apricot easily leading in four plots and cherry plum in the fifth; the latter is in poorer soil. **Crop:** Heavy on all stocks, with apricot the best, while peach is the least consistent; size of fruit much the same, being good; colour and firmness also good, but slightly superior in both qualities on apricot; the first to mature was on peach, followed by cherry plum, with apricot last.

Moorpark.—Growth: Trees on cherry plum were the best, followed by those on apricot, Mariana, and peach in that order. **Crop:** Heavy on all stocks, cherry plum and apricot being slightly the heavier; quality of fruit in colour, size, and firmness was better on apricot, followed closely by cherry plum, then Mariana and peach in that order; order of ripening, peach, cherry plum, apricot, Mariana.

Tilton (on Mariana only).—Growth good, crop heavy, but quality and size of fruit was poor.

General Recommendations.—Any recommendation must be distinctly qualified by the understanding that the trees in the oldest of these trials have only been planted out 11 years.

Roxburgh Red. — Apricot has proved the best stock both for growth and size and quality of crop. Cherry plum makes a good second, and may prove the better stock on poorer land or where subjected to the vicissitudes of irregular irrigation. Peach is the poorest, but has the advantage of earlier maturity of the fruit.

Moorpark. — The cherry plum stock leads for growth, and in cropping it equals the apricot stock, but is slightly inferior to it in quality of fruit. There is little to choose between these two stocks, but, as with Roxburgh Red, poorer soil and erratic treatment would probably favour the cherry plum. The peach stock is again the poorest, but the earliest to mature.

—*W. R. LLOYD WILLIAMS, Orchard Instructor, Alexandra.*

Answer to Correspondent

TIMBER PRESERVATION.

"SOFTWOOD" (MATAMATA)—Would it be possible to make Lawsoniana posts more durable by soaking them in a bluestone solution?

State Forest Service:—

"From 1841 impregnation of timber by a 1 per cent. solution of copper sulphate was used in France on a large scale, but has now given way to creosote.

"The solution has good penetration, but is fairly easily washed out. Its disadvantages are that it corrodes iron (only galvanised iron should be allowed to come in contact with any timber so treated), and is one of the weakest antiseptics in use for the preservation of timber.

"Impregnating with creosote is now the chief method in use."

Current Work In The Citrus Orchard

Plant Shelter Trees.—Shelter is essential for a citrus orchard. This is the latest period planting can be done this year with a reasonable chance of success. Select shelter trees which have proved suitable for the locality.

Plant Villa Franca Lemon Trees.—This variety matures fruit during the period from January to March when New Zealand-grown lemons are in short supply. Secure strong trees from selected buds and on Sweet Orange or Rough Lemon (citronelle) rootstock.

Plant Meyer Lemon Trees.—This variety is very popular for colour and texture. Its juice is of value and the crop is harvested during May and June before lemons are most plentiful. Beware of trees from cuttings—they are difficult to make into good shaped trees. See that the trees are kept free from disease, especially citrus verrucosis to which this variety is particularly susceptible.

Plant New Zealand Grapefruit Trees.—This variety is becoming increasingly popular with the public. The demand is good. Secure strong trees. Be sure buds are from superior strains.

Plant Sweet Orange Trees: Washington Navel, Hamlin, St. Michael, Ruby Blood.—There is an unlimited demand for good quality oranges. The soil must be deep and rich and retain moisture during summer months. Choose varieties with care and be sure the trees are on Sweet Orange rootstock.

Harvest Lemons: Aim for the Silver Green Lemon 2¼in. in Diameter. — To improve keeping quality lemons must be picked to size monthly. Pick with care and use sharp secateurs of a type which enables clipping to be done close up to the "button."

Harvest New Zealand Grapefruit.—This fruit is at its best for grapefruit purposes at this period of the year. Pack carefully in standard cases.

Harvest Sweet Oranges and Mandarins.—This fruit is in good demand when properly mature and harvested correctly. Each variety has its own ripening period and should be harvested when fully mature, not when only coloured. Test the fruit before harvesting. Mandarins have a very short period for harvesting. They dry out if left too long on the tree.

Plough or Disc in Leguminous Cover Crops or Weeds.—This will aerate the soil, improve the humus content, and reduce vegetation which competes with the trees for water and plant nutrients. Avoid cutting the large roots of citrus trees. The trees cannot set a crop this year if the roots are cut now.

Hoe or Mulch Under Each Tree at Least to the Spread of the Branches.—To aerate soil and prevent weeds from growing up amongst the branches. Where dicky-rice weevil is prevalent weeds will nullify banding. Do not injure the bark of the tree trunk. Do not place mulch close up to the tree trunk as it renders bark liable to attack by fungous diseases.

Renew Tree Banding Material.—Dicky-rice-weevil adults are seen in August. Keep tree branches clear of the ground or banding is wasted.

Prune all Citrus Trees.—The most suitable period of the year for pruning citrus trees is just after the main crop of each variety is harvested. Do not over-prune. Keep trees open, clear of the ground, and free from dead wood, crossing branches or very vigorous upright sucker growth.

Apply Nitrogenous Fertilisers: Dried Blood, Blood and Bone or Fish Manure, ½lb. to 10lb. per Tree According to Age and Cropping Capacity.—Nitrogen is one of the main limiting factors in citrus fruit production. It is generally in inadequate supply following the turning in of cover crops. Spread in a band around the trees but not closer than 18in. from the tree trunk.

Overhaul Spraying Equipment.—The spraying season is at hand. Time spent now will prevent breakdowns later.

Order all Spraying Requirements: Bluestone, Hydrated Lime, Acid, Lead Arsenate, Nicotine Sulphate, Summer Oil.—They will all be required if the citrus orchard is subject to: verrucosis, wither-tip, brown rot, leaf roller caterpillar, thrips, scale insects. Purchase only those materials certified by the Plant Diseases Division. Store materials in dry conditions and keep hydrated lime in air tight containers.

—A. M. W. GRIGG,
Citriculturist,
Auckland.

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The Planting Season Is Here

"No mystery is involved in the making of a garden; only the learning of a few of Nature's laws and the likes and dislikes of plants."

—Thomas R. Best.

SEPTEMBER is, or should be, the busiest month of the year for the home gardener. In almost any part of the Dominion seeds of those varieties of vegetables not affected by light frosts may be sown.

Green manure crops which were dug in some time ago will now be well decomposed and the soil condition favourable for sowing seed and setting plants.

At no time has the necessity for careful attention to seed-sowing been of greater importance. While the vegetable seed position may be considered satisfactory, and will no doubt meet ordinary requirements, there will not be any seed to spare and none to waste, hence the necessity for the greatest economy in the use of that which may be purchased. In order to prevent disappointment and loss of valuable time, a simple germination test is recommended.

The Seedling Box

In the home garden notes the use of a seedling box as a means of growing vegetable seedlings has been consistently advocated. The box may be made from odd pieces of light timber, and, for convenience of handling, should be the same length and breadth as a standard apple case, i.e., 18 x 11½ inches. Three inches in depth will be sufficient for plants such as tomato, lettuce, onion, etc., but for cabbage, cauliflower, etc., greater depth will be necessary.

When In Trouble

When results from growing your own seeds and growing your own plants are unsatisfactory and you are worrying over the probable cause, why not consign your troubles to the Director of the Horticulture Division, P.O. Box 3004, Wellington? He may be able to assist you. Write him now.

It should be remembered that, in addition to the necessity of moisture, warmth, and air, for best results in seed germination the composition of the soil in the seed bed is of considerable importance. This should always be a friable mixture of soil—rich in organic matter — and sharp sand in the proportion of 3 of the former to 1 of the latter A couple of handfuls of bonedust mixed with the soil would be an advantage; but should this fertiliser not be available a handful of superphosphate will supply the necessary plant food—phosphoric acid—which will be a valuable aid to root development

The box should not be just filled with the mixture. The soil should be well pressed down, particularly round the sides, and in the corners. Surplus soil should be removed until it is level with the sides of the box, when it should be firmly pressed down, preferably with a piece of dressed timber. (The accompanying photo. illustrates a well-prepared "seed-bed" in a seedling box.)

Sowing the Seed

Broadcasting seed is not recommended; they should, except in special instances, be sown in drills. By sowing in drills weeds are more easily destroyed, thinning — when necessary—is done more easily, and the soil can be stirred between the rows. It will also assist in preventing an outbreak of damping-off among the seedlings.

Faulty germination is not always due to poor quality seed, but may be due to neglect in taking proper

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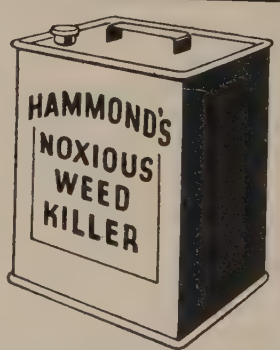

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What to Do in the Home Garden Next Month

Summary of Operations During September

SEEDS TO SOW.

Sowings under glass: Tomato, melon, pepper, celery, cucumber, Cape gooseberry.

SUCCESSIONAL SOWINGS

Turnips, lettuce, spinach, spring onions.

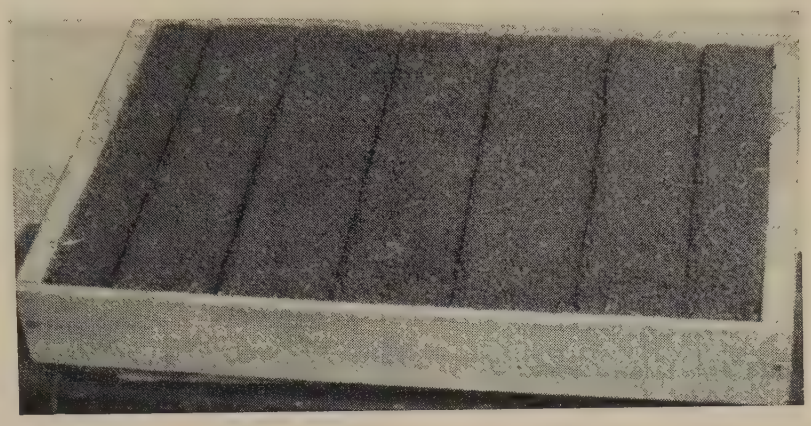
OTHER SOWINGS.

Cabbage (early Savoy), cauliflower, celery, leek, lettuce, peas, parsley, parsnip, radish, spinach, turnip.

PERENNIAL CROPS.

Asparagus: Sow seed Sept.-Oct.; plant spring, 1943. Plant one-year-old crowns Sept. Rhubard: Sow seed of winter variety (Topps Winter) and plant in early autumn.

care when sowing the seed. No hard-and-fast rule can be laid down for guidance regarding seed-sowing, but it may be mentioned that seeds sown in early spring will not require the same depth coverage as those sown in summer. In the warmer summer



A well-prepared seed-bed in a seedling box.
[*A. L. Bryant, photograph.*

warmth and air will cause the embryo plant to die. A rule in seed-sowing which might well be remembered is that the smaller the seeds the finer the soil should be in which they are to be sown. Soil which is likely to pack hard and form a crust is not a good soil in which to sow seeds. In such soil the seeds may germinate but the young plants may not be strong

weather the soil will dry out quicker, and if the soil is permitted to become too dry, the seed will wither and be rendered useless. Seeds should not be buried too deep, otherwise, although germination may take place, the absence of necessary

Seasonal Don'ts

Don't

plant so that all varieties of vegetables mature at or about the same time. This is not making the best use of the garden.

Don't

neglect cropping for late autumn and winter maturity. Broccoli, Brussels sprouts, Savoy cabbage (late), and Scotch kale will all stand severe weather without injury. The latter is very hardy and is one of the most valuable vegetables in the garden for its vitamin and mineral salts content.

Don't

try to work up rain-soaked soil. Gardening operations carried out when the soil is in this condition will result in undesirable consolidation.

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enough to break through the encrusted surface.

When sowing is completed, the soil should always be pressed down gently, but firmly on the seed. This will materially assist capillary attraction of moisture necessary for germination.

Tomatoes

Tomato plants should take a prominent place in the garden during the coming season. The seed may be sown towards the end of August. The accompanying photograph will indicate what may be done in a 4-inch flower pot when only a few plants are required. The pot which contains 60 seedlings (a small box or carton would serve the same purpose) is sitting in a 5lb tea box, with a sheet of glass fitted to slide in the place previously occupied

A 4-inch flower pot containing 60 seedlings.
[A. L. Bryant, photograph.

by the lid. This box was placed in a kitchen window facing the sun, and, when the seed was sown, the pot was covered with a small piece of a single sheet of newspaper, which was removed as soon as germination started.

A watering-can should never be used to water seedlings. If the soil appears to be getting too dry, set the pot in a basin of water and watch it until the soil at the top shows a tendency to become moist. When this happens, the pot should be instantly removed and set up to drain. Excessive moisture on the top soil may be the means of starting damping-off among the seedlings, which would have disastrous results.

During mid-September the seedlings should be "pricked" out into a seedling box 3 inches deep, and placed under cover. If a glasshouse is not available, any kind of a frame or a wooden case, covered by an old window, can easily be made suitable. So long as the structure protects the young plants from cold winds and rain, progressive growth will be maintained. On very cold nights the plants may be taken inside a house.

Celery

Seeds of this vegetable may be sown in September, and germination can be expected in 2½ to 3 weeks. Every endeavour should be made to keep the plants "stocky" so that continuity of growth will not be seriously interfered with after they have been pricked out. A small bed can be made up in a corner of the garden, into which the plants may be removed allowing 2 to 2½ inches each way between them. In this position they can be allowed to grow until transferred to the place where they will remain till ready for harvesting.

Asparagus

Home gardeners desirous of planting out a bed of asparagus next year may now sow seed during September and October, but not before the soil has begun to warm. Three weeks or longer might elapse before the young plants appear; but cold, damp conditions may prove disastrous to germination. The plants are easily grown after being pricked out into the garden, 4 to 4½ inches each way being allowed between them. Before pricking out the plants, broadcast agricultural lime on the bed at the rate of ¼lb. to the square yard, and work it into the soil.

Main Crop Potatoes

Ground which during the winter months has been occupied by late-maturing cabbages, broccoli, etc., will be a suitable part of the garden in which potatoes may be grown. Tubers for main crop planting need not be sprouted. As this crop will remain in the garden a considerable time, the ground should be well and deeply dug. Deep digging will be beneficial, as the soil will not have the same tendency to become "set" and hard. Soils which pack tightly are inimical to good tuber development.

More fertiliser is desirable for early potatoes than for main or late crops. Stable or farmyard manure, if applied in excessive quantities immediately before planting, may have the effect of producing too much top growth which might be weak and likely to lack resistance to disease. This manure is best applied and dug in during autumn. A useful fertiliser for main or late crops is made up of three parts superphosphate and one part sulphate of ammonia—both by weight. This is distributed along the furrows in which the tubers are to be set, at the rate of 1lb. to every six yards of row. A liberal dressing of unleached wood ashes as a substitute for potash, may be distributed at the same time and in the same way as the fertiliser.

Cabbages

Summer varieties of cabbage plants may be set out as soon as they are five to six inches high. "Stocky" plants, set in freshly-dug soil, or immediately after rain, will have a good start. With the advent of warmer weather development should be such that the crops may be expected to reach maturity closely following the autumn-planted spring crop.

Cauliflowers

Seedlings may be planted at the same time as summer cabbages, but these will require a more sheltered position in the garden. Before setting, cutting in half the large outside leaves of the plants is advocated as a means of encouraging earlier and better growth. Bunch the plants together and hold on a wooden surface while cutting with a large, sharp knife. This also applies to cabbage plants, but care must be taken not to injure the centre growth.

Peas

A main sowing of peas may now be made. To give the plants better rooting facilities and greater stability, the seeds are best sown in a furrow or drill 4 to 5 inches deep and covered to a depth of 1 to 1½ inches. When covering is completed, the soil should be pressed, gently but firmly, on top of the seed. Distribute a few handfuls of burnt lime along the rows. If applied evenly, the lime will not adversely affect germination of the seed and will be effective in preventing destruction of the young plants by birds or slugs. As the plants come through the soil, more burnt lime may be evenly but lightly distributed without danger of any injury, but with the same efficient results.

—D. K. PRITCHARD,
Instructor in Vegetable Culture, Wellington.

Seasonal Work for Beekeepers

Hive Roof Covers

DUE to war conditions there is now a serious shortage of flat iron in New Zealand for hive roofing purposes. Beekeepers are therefore obliged to find new methods of covering their hives with waterproof materials with the result that one will see substitutes being used to meet the situation.

Mr. G. Swanson, of Waikaka, Southland, is using a cheap but effective method of making a waterproof hive roof without the use of flat iron.

Method

The flat roof is made as usual of fairly stout timber, about ¾in. thickness sides and decking. A piece of sacking free of holes is cut to fit over the wooden roof, allowing about two inches to overlap the sides. Next a bucket of cement is mixed to the consistency of thick paint and the sacking is soaked in it until thoroughly saturated; then lifted and shaken lightly before tacking it to the roof. A few galvanised clout tacks driven in along each edge (as with flat iron) is all that is required to hold the sacking tight.

Finishing

Before standing the prepared roof out to dry, a coat of cement and sand applied with a whitewash brush (or something similar) will fill any cracks that may have appeared during the fitting of the sacking to the wooden roof. Where cracks appear after the cement is dry, another coat of cement and sand will effectively seal them.

Roofs made by the above method have now been in use for two winters, and appear to be as good as the day they were made, and are still waterproof.

I. L. BOX, Apiary Instructor, Invercargill.

SUBSCRIPTION RATES.

The *Journal* is issued monthly. The subscription within New Zealand, which is payable in advance and includes postage, is 2s. 6d. a year. The overseas subscription is 5s. Subscriptions should be forwarded or paid direct to any office of the Department of Agriculture in the Dominion. Single copies, price 6d., are available from the Department of Agriculture, Box 3004, Wellington.

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Reminders for Spring Work

The main object of the first spring examination of hives is to check up on stores.

Artificial feeding should be avoided whenever possible.

It is easier and more economical to supply the bees with combs of honey kept for the purpose from the previous season.

When feeding out combs of honey do not disturb the pollen combs on either side of the cluster.

Remember that pollen is essential as honey for feeding the young larvae.

Place the combs of honey outside the pollen combs on each side of the brood nest.

All feeding operations should be done late in the day to prevent the possibility of robbing.

Where beekeepers are uncertain in regard to artificial feeding, they should consult the Apiary Instructor for their district.

—T. S. WINTER, Senior Apiary Instructor, Wellington.

HESKETT SLAG

Many soils of high-rainfall parts of New Zealand lack Lime, and contain large quantities of Iron and Allumina, which rob the farmer of about four-fifths of every ton of Water-Soluble Phosphates spread on these soils; a Basic Slag contains, among other minerals, large quantities of a non-acid chemical compound known as Calcium-Silico-Phosphate which, it is claimed, has the power of unlocking these dormant minerals from the soil. The phosphates of a Basic Slag cannot be locked up by these soils because they are already combined in a form easily digested by the root acids as they need them.

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THEORY and PRACTICE OF FEEDING

Part III (Concluded.)

By F. C. BOBBY,
Superintendent of Poultry Husbandry, Wellington.

Mixing Rations

BEFORE dealing with formulae for grain and mash mixtures for poultry, it would seem necessary to discuss the method of describing the proportions of grain and meals included in these mixtures. It is a common practice in New Zealand to quote the proportions of meals or grains used in poultry food mixtures in terms of "parts by measure." While this is obviously a practical method of describing or mixing a mash or grain mixture, it must be admitted that it is also a very crude method and one likely to lead to appreciable inaccuracies. In actual practice this statement can be confirmed since it is not uncommon to find gross mistakes in feeding due to a lack of knowledge of the correct method of mixing rations.

Mixing on a basis of "parts by measure" is mixing on a volume basis, and quite definitely birds are not fed by volume; they require a definite weight of digestible food constituents, with which to maintain their bodies, and in addition produce eggs. Furthermore, the bulkiness of the various foods used for poultry varies so much that it is not a practical proposition to quote all the meals in "parts by measure"; hence rations are expressed as follows:—

Pollard	2 parts	by measure.
Bran	1 part	
Meat-meal	..	10 per cent.
Mineral mixture ..	..	2 per cent.

Correct Mixing Important

What exactly does such a mash formula mean, and is it possible to include accurately 10 per cent. meat-meal and 2 per cent. minerals without first knowing the weight of the other two meals—the pollard and bran? It is a fair statement to say that a large proportion of poultry-keepers add what they think to be "about 10 per cent. of meat-meal." A poultry instructor, while checking the mash fed by a commercial poultry-keeper recently, discovered that approximately 30 per cent. meat-meal was being included in this mash; yet the poultry-keeper in question was under the impression that he was feeding "about 10 per cent. meat-meal." If it was possible to check accurately the mashes fed by a representative number of poultry-keepers, it is certain that the one quoted as feeding 30 per cent. instead of 10 per cent. would not be the only practical poultry-keeper who was wide of the mark in this respect. Errors of this nature occasioned by guesswork can be costly.

If concentrated foods, such as meat-meal, are fed in excess, damage may be done to the laying stock so fed, while quite obviously the cost of the mash is made unnecessarily high. Alternatively, if the error is in the opposite direction, a poultry-keeper will be under-feeding protein, and this may be the cause of slow egg production; particularly during winter.

"Parts by Weight"

It will be obvious to those poultry-keepers who are interested in checking up the feeding values and nutritive ratios of their mashes, that any calculations are impossible unless the **weights** of the various ingredients included in a mash are known. It is for the reasons discussed above that the Department will set out in publications all rations—whether grain mixtures or mashes—in terms of ingredients on the basis of "parts by weight" and not "by measure." Similarly, poultry instructors have been requested to offer advice on feeding along the same lines with the object of simplifying and improving poultry food mixtures It is interesting to note that New Zealand is one of the few countries having a poultry industry which still retains the method of quoting

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rations in terms of "parts by measure." For the reasons discussed, this method has been replaced by the more accurate one of "by weight."

Method of Mixing

It is now necessary to tackle this suggested change from the practical poultry-keeper's angle and see how it may alter the procedure on his farm. Particularly in times of shortage of labour poultry-keepers will not be induced to weigh up each mixing of mash or grain, and it can be stated quite definitely that this is not necessary. There is only a necessity for weighing out a mash or grain mixture when it is **first** put into use or subsequently when it is altered in composition. When **weighing** each ingredient at the start, the amount by measure, using any convenient measuring vessel, may be noted **carefully** and thereafter the practical method of mixing by measure may be retained. Particular care should be exercised in noting the required quantity of concentrated foods such as meat-meal, milk powders, mineral salts, etc., as these affect the balance of a ration more quickly than the bulky foods, e.g., bran, pollard, lard, etc.

Commercial-poultry-keepers with large flocks of birds will find that time and labour is saved by mixing up, say, a week's supply of laying mash at one time. This bulk of mash can be stored in bins or even sacks and drawn upon daily in the required quantities. When this is done it is often possible to work out a ration in so many bags of certain ingredients (pollard, bran, wheat-meal, etc.), together with a weighted quantity of the concentrates.

This method, which is freely adopted on commercial poultry-farms overseas, does not appear to meet with favour in the Dominion, in spite of the obvious saving in labour and the fact that a more uniform mash is attained over a longer period of time. Mixed once a week the mash remains uniform for that week; but mixed each day there is a possibility of seven variations.

Green Feed

Before leaving the question of mixing poultry rations, a comment upon feeding green feed will not be out of place. That green food—particularly fresh succulent young vegetation—is an essential part of a bird's daily ration is agreed upon by all practical men, but marked variations in the method of feeding this green food will be found. Speaking in general terms, green food is not given to laying birds for the purpose of producing eggs or maintaining body weight—both these two objects can be easily attained without green food.

Green food is a supplementary food, fed with the object of supplying small quantities of vitamins, minerals, colouring material, etc., which vitally affect the health and natural functions of the bird, while adding to the yolk colour of her eggs. Green food is bulky and largely comprised of water. Is it not reasonable, therefore, to supply this green food in addition to the bird's requirements of grain and mash, which are the basic foods for egg production and maintenance of body condition? The point at issue is as follows: If bulky green food is fed before or at the same time as the bird receives its mash, the bird will not eat **more** bulk of food at this time. It will eat a normal amount up to a fully distended crop. Therefore, if an appreciable amount of this total food consumed is green food then quite logically there can be less room for the essential mash. A fall in mash consumption, particularly during the late autumn and winter period, usually results in two things, a drop in egg production and body weight, or a drop in body weight first and a drop in egg production later.

Although there is no experimental data available at the present time to confirm the suggestion discussed above it would appear to be a logical proposition to suggest that poultry-keepers feed green food separately, and **after** the birds have received a full feed of mash, which mash should have at

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A Delayed Wagon Means Retarded War Effort

least started to pass on from the crop into the digestive system. This suggestion must particularly apply where the poultry-keeper is forced by circumstances to feed green food containing a high proportion of bulky fibrous material. Such fibre cannot be digested by poultry, and is therefore of little feeding value.

Rations

These may be divided under two main headings, each of which is again subdivided as follows:—

A. Chick rations.	(i) grain mixtures; (ii) mashes.
B. Adult rations.	(i) grain mixtures; (ii) mashes.

It is impossible to list even a substantial proportion of the various rations fed successfully to chicks and laying birds, and accordingly only a representative sample of rations suitable to average commercial conditions will be quoted. Attention will be paid as far as possible to some of the less popular foods, as undoubtedly some of these will have to be used during the present war.

A.—Chick Rations

1. Mash Formulae.—The first group stated is suitable for young chickens after one week and up to about six weeks of age.

Pollard	20 lb.	Pollard	30 lb.	Pollard	30 lb.
Wheat-meal	33 lb.	Wheat-meal	20 lb.	Bran	15 lb.
Bran	20 lb.	Bran	15 lb.	Maize-meal	20 lb.
Maize-meal	10 lb.	Maize-meal	20 lb.	Finely ground oats	20 lb.
Dried milk	10 lb.	Dried milk	8 lb.	Dried milk	8 lb.
Meat-meal	5 lb.	Meat-meal	5 lb.	Meat-meal	5 lb.
Minerals	2 lb.	Minerals	2 lb.	Minerals	2 lb.
	100 lb.		100 lb.		100 lb.

The mineral mixture should consist of 1lb. common salt and 1lb. oyster-shell dust (or limestone flour). The dried milk may be either dried skim-milk or dried buttermilk. Where birds are not exposed to direct sunlight (i.e., are reared inside a brooder-house), add two pints of cod-liver oil to every 100lb. of any of the above mashes.

When the chickens reach the growing or range stage after leaving the brooders, then the amount of protein fed in the mash must be reduced. Thus the following mashes are suitable from about eight weeks onwards. The change-over should be made gradually by adding some of the growers' mash to the chicken mash, increasing the amount of the former until a complete change-over is made.

No cod-liver oil is necessary with these mashes where the pullets are running outside. The mineral mixture is similar to that used in the chicken mashes. It may be noted that if the pullets appear to be maturing sexually too quickly, without sufficient body size, the milk and meat-meals can be cut down by half.

2. Grain Mixtures.—Grain mixtures for chickens are mixed in two grades or sizes, usually referred to as Chick Feed No. 1 and Chick Feed No. 2. The No. 1 size is suitable for chickens up to about four weeks of age, and No. 2 size from that time onwards until the birds will readily eat whole grain at about eight weeks. The following mixtures are recommended:—

Pollard	24 lb.	Pollard	34 lb.	Pollard	34 lb.
Wheat-meal	33 lb.	Wheat-meal	20 lb.	Bran	25 lb.
Bran	25 lb.	Bran	25 lb.	Maize-meal	15 lb.
Maize-meal	10 lb.	Maize-meal	15 lb.	Finely ground oats	20 lb.
Dried milk	3 lb.	Dried milk	2 lb.	Dried milk	2 lb.
Meat-meal	3 lb.	Meat-meal	2 lb.	Meat-meal	2 lb.
Minerals	2 lb.	Minerals	2 lb.	Minerals	2 lb.
	100 lb.		100 lb.		100 lb.

No. 1 Feed.

Finely-cut wheat	60 lb.
Broken groats (hulled oats)	20 lb.
Maize grits	20 lb.

No. 2 Feed.

Coarse-cut wheat	60 lb.
Hulled oats	20 lb.
Coarse maize grits	20 lb.

Poultry-keepers are warned against feeding the No. 2 size at a day old, since the chicks **cannot** eat it and the remainder is wasted.

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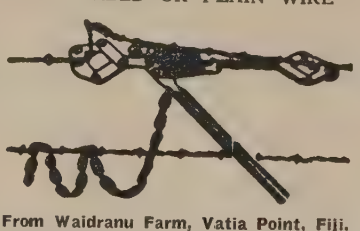

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B.—Adult Rations

1. Mashes.—The composition of laying mashes will vary according to the foods available in any given district under present conditions. The following is a small selection of meals embodying the various poultry meals available:—

Pollard	.. ..	70 lb.	Pollard	.. ..	45 lb.	Wheat-meal	..	30 lb.
Bran	.. ..	20 lb.	Bran	.. ..	23 lb.	Pollard	.. ..	20 lb.
Meat-meal	.. ..	8 lb.	Maize-meal	.. ..	20 lb.	Bran	.. ..	26 lb.
Minerals	.. ..	2 lb.	Meat-meal	.. ..	10 lb.	Maize-meal	.. ..	12 lb.
			Minerals	.. ..	2 lb.	Meat-meal	.. ..	10 lb.
						Minerals	.. ..	2 lb.
		100 lb.			100 lb.			100 lb.

Barley-meal	..	30 lb.	Pollard	.. ..	44 lb.
Pollard	.. ..	22 lb.	Bran	.. ..	20 lb.
Bran	.. ..	20 lb.	Finely ground oats		25 lb.
Maize-meal	.. ..	15 lb.	Meat-meal	.. ..	9 lb.
Meat-meal	.. ..	11 lb.	Minerals	.. ..	2 lb.
Minerals	.. ..	2 lb.			
		100 lb.			100 lb.

The mineral mixture recommended with any of these mashes is 1lb. common salt and 1lb. limestone flour. The first mash listed is the equivalent of the popular laying mash usually referred to as 2 parts pollard, 1 part bran, and 7½ per cent. meat-meal. The other mashes allow for the use of maize-meal, wheat-meal, barley-meal, or ground oats, the latter being a meal favoured in Southland.

All these mashes are for use during winter, and it is recommended that the quantity of meat-meal be reduced in each case by a **minimum** of 2 per cent. during the flush season of eggs. The first mash listed is recommended for breeding stock.

2. Grain Mixtures.—Grain mixtures are composed mainly of wheat, barley, kibbled maize, and oats in varying proportions. For use in winter for laying pullets 60 per cent. wheat and 40 per cent. kibbled maize can be recommended, while in spring and summer the maize should be reduced to 20 per cent. and the wheat increased proportionately. Barley may replace maize with the wheat, but is not so palatable. Oats may be included in a grain mixture during spring and summer with advantage, in quantities up to 30 per cent.

No hard and fast rules need be laid down as to grain mixtures, but the notes above should be taken as a general guide. Availability and prices of the various grains influence poultry-keepers to a great extent.

With the above discussion upon mash and grain mixtures comes the conclusion of a series of articles upon feeding poultry. The first article appeared in the February issue of the "Journal," and each subsequent issue has contained further material on this subject. Much more could have been written, but every endeavour has been made to keep the information practical and along lines likely to be of interest and value to poultry-keepers.

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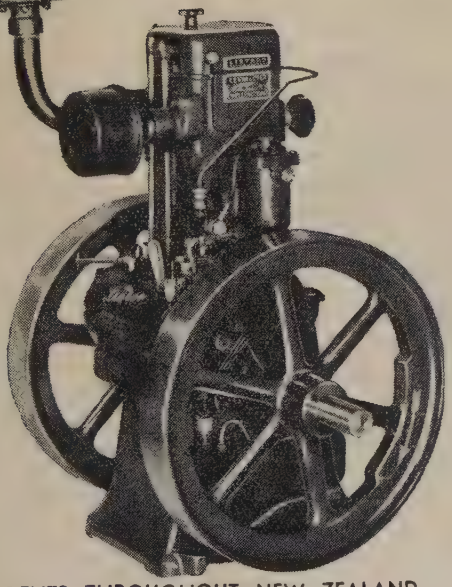

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Federation of Young Farmers' Clubs

Eighth Annual Report of N.Z. Federation of Young Farmers' Clubs

Eighth annual report of the New Zealand Federation of Young Farmers' Clubs (Inc.), presented at the annual general meeting at Dunedin on July 1, 1942, by the Dominion President, Mr. D. S. Ross.

I HAVE pleasure in presenting the eighth annual report of the New Zealand Federation of Young Farmers' Clubs. The past year has been one of severe trials for the Empire, and there is still definite need for each and every one of us, in all walks of life, to contribute to the war effort, both by work and sacrifice. While rays of light appear at times to shine through the war clouds, it is very apparent that the struggle for freedom is yet far from the end. Nevertheless we must make preparation for the even greater task that lies before us, that of reconstruction and rehabilitation.

The Y.F.C. Dominion Executive Committee met twice during the year —at Christchurch and at Wellington. On both occasions delegates from the four Councils attended, and at one or both the Department of Agriculture, Massey College, and Lincoln College were represented. Many recommendations were made to the various units of the organisation at these meetings, which, if carried out would have helped materially to strengthen our position.. The individual members will know just how far they have incorporated these recommendations in their club activities.

Members in the Forces

Our movement is passing through a very critical period; this is only to be expected, and was anticipated at our last annual meeting. Our ranks have been considerably depleted, and many clubs have gone into recess. We can take pride, however, in the knowledge that over 3000 of our active members have left their clubs to serve with the armed forces, either at home or abroad. Many of the latter have paid the supreme sacrifice, and to their relatives we extend our deepest sympathy . Those of our members who still remain on the land, many of them under military age, are fighting, as it has been so aptly termed "on the home front", working strenuously to supply the needs of their comrades overseas and those dependent on them at home. Those members who have been appealed for—as in many other industries—are rendering yeoman service to their country by carrying on under great difficulties in an endeavour to keep the land productive in order to provide food for those at home and in other parts of the Empire.

During the year we have been faced with many difficulties. Club after club has struggled bravely along, often supported by a few keen workers, with the assistance of the advisory members, only to find it necessary to submit to the inevitable on account of difficulties that appeared insurmountable. At the same time a wonderful example was set by some clubs and district committees, who, being convinced of the value of their movement even in war time, were able to demonstrate that many of the handicaps could be overcome if the right "team spirit" could be cultivated and brought to fruition. It is due largely to those clubs and district committees that we owe the existence of our organisation today. I cannot over empha-

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sise the need for district committees to accept major responsibility for holding the movement together in the meantime.

Club Membership

Up to December last, despite weaknesses, the position of our movement, throughout the Dominion generally, was more hopeful. The outbreak of war in the Pacific, however, brought fresh problems, and from that moment the movement experienced a very severe setback. Unfortunately some clubs that were still actually in a position to carry on took the line of least resistance and closed down—it is hoped only for the duration of the war. In the North Island in particular whole districts went into recess, although an odd club here and there has been revived. The following table, showing the position of the clubs, gives interesting comparisons:

Council Area.	Before the War.	Annual Meeting, July, 1941.	November, 1941.	March, 1942.	To date.
Otago-Southland ..	35	28	28	16	12
Canterbury ..	38	27	28	18	18
Wellington ..	77	53	40	24	20
Auckland	53	32	30	23	17
Totals ..	203	140	126	81	67

These figures reveal that since the war commenced over 67 per cent. of the clubs have gone into recess; we have barely 33 per cent. of our clubs left. This on the face of it, would indicate a very grave situation. The figures alone, unsupported by other relevant facts, certainly provide reasonable argument for those who would have us believe that the movement, as a whole, should go into recess. My own opinion, and it is shared by many others, is that our duty lies in giving our best in an attempt to keep the organisation alive. To keep it alive not merely for the sake of the movement itself, which alone provides a valid reason, but also on account of the duty we owe to those of our members who are fighting overseas, and also for the sake of the younger generation. We gave our members when they left for overseas an assurance that we would carry on. A number have already returned, and are encouraged by the fact that the organisation is still functioning. Not only are we under an obligation to our members in the services, but we should endeavour to cater for the lads who have reached the age when they can derive material benefit from the movement, and then again for those who in a few short years will be of an age to participate in its valuable activities. Of a certainty the development of leadership must be encouraged amongst the younger members of the farming community.

Realising the difficulties under which clubs have been labouring, and the strain to which they and their members have been put to keep their organisation intact, the fact that we have still a significant proportion of our clubs active, in spite of all handicaps, should be a sufficient proof that our movement is capable of facing up to extreme difficulties. Of the clubs that are still functioning, the greater number could, and would desire to carry on as independent units, even if the federation adopted the extreme course and went into recess for the duration of the war; of the remainder the majority need just that little extra stimulus and encouragement to carry on—and it is our duty to provide ways and means to this end.

Club Activities

During the past year, as could only be expected, activities have been still further curtailed. Nothing of a national character has been attempted, excepting for the Y.F.C. Experimental Scheme, whereby members were given the opportunity of co-operating with the Department of Agriculture in the laying down of a number of plot trials on their individual farms; a total of 238 trials were undertaken and laid down in the autumn and spring, throughout the Dominion, which, considering all circumstances, can be said to be quite satisfactory.

Competitive activities, such as stock-judging and debating, were more or less confined to districts and to individual clubs, but this phase of club work has definitely been carried on. Owing to petrol restrictions many clubs have found it increasingly difficult to obtain lecturers for their meetings; this is unfortunate, as lectures are of especial value. This has thrown existing clubs more and more upon their own resources, and impromptu speeches and set debates are coming very much to the fore.

Many members themselves have experienced great difficulty in attending meetings, especially in the more sparsely populated areas, where long distances have to be overcome. We have to rely today, so far as active membership is concerned, on the younger lads of the rural community, and we have to depend more and more on the good will and services of the older farmers and others to help us to hold our clubs together, and to assist in training up these younger members, who, though they may have the keenness, have not had the experience necessary to enable them to hold and maintain their clubs. Most of the existing clubs are active today by virtue of the fact that they have been able to recruit the younger members; an example of what can and should be done is provided by those clubs that realise their responsibilities and whose members, at no little inconvenience to themselves, take steps to ensure that their meetings and other activities are sufficiently attractive to encourage younger lads to join, and interesting enough to hold them as members.

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War Effort of Members

We realise that we **must** win this war; preparedness to the limit of our resources is necessary to accomplish this, and we must be ready to make many sacrifices. This does not mean that we are forced to give up everything. Even in war time our members, in common with all sections of the community, including the military services, have a certain amount of leisure and relaxation; it may be very limited, but it could be very profitably spent in fostering such an organisation as this. The Young Farmers' Clubs represent to the youth of the rural community all that is contained in the young people's educational, social, and recreational organisations in the towns and cities. The Y.F.C. movement has contributed much already to the war effort; I believe far more than at first sight appears. From the outbreak of war the efforts of members have been untiring—as individuals and as clubs. Primary production appeals have been assisted, and members have been well to the fore in encouraging and even organising some of the many patriotic appeals that have been so successful throughout the Dominion. Home Guard and E.P.S. units have been well supported, and, on account of shortage of labour, long hours have been worked on the farms. In addition to this the keen supporters of the movement are still doing their best to keep up club activities.

Club Meetings

I am fully aware of the difficulties confronting clubs in the way of securing good attendances at meetings. The war effort must come first with everybody; but the devoting of one evening a month to club meetings cannot possibly interfere with the war effort, and is surely worth while if the value of the Y.F.C. movement is appreciated. In many districts members are overcoming the petrol problem by using bicycles and horses, or bringing out the old discarded gig or buggy, except where distances preclude such a course. High schools in some districts are providing us with the material for fresh efforts by giving every encouragement for pupils to attend and take part in the activities of the local clubs; and in some instances clubs have actually been formed among the high school pupils themselves. It is encouraging to note that three new clubs were formed during the year, one of them quite recently. Reviewing the whole situation it would appear that we have the matter largely in our own hands. It we can work through the Councils and District Committees to stimulate the clubs that still remain to further efforts; if we can obtain a little more concerted action by members themselves, and a little more encouragement and active assistance from the older farmers, then we shall have gone far along the road to perpetuating the Y.F.C. movement by holding our organisation together during this time of trial.

To all club members I would say this: Yours is the task and yours is the responsibility. Those of you who have been associated with the Y.F.C. movement for any length of time can truly appreciate its worth; you yourselves have had **your** value from the movement, and it is now your duty to do your utmost to keep it going. The example set by the Young Farmers' Clubs of Great Britain, which are carrying on under far greater difficulties than you have experienced should give you heart to make every effort to keep your organisation intact. If you can hold the majority of the existing clubs we shall be in a far better position to commence our rebuilding programme as soon as peace is declared; we can use these "live" clubs as the "spearheads" in the campaign for the complete revival of our organisation.

The balance-sheet discloses a satisfactory financial position.

Appreciation

I wish to thank, on behalf of the Federation, the Minister of Agriculture (Hon. J. G. Barclay) for his great interest in the Y.F.C. movement, and for his active assistance. I also wish to thank the officers of the Department of Agriculture who have been of material assistance in the carrying on and fostering of the organisation. I also wish to acknowledge the help given to the clubs and other units of the organisation by the New Zealand Farmers' Union, the A. and P. Societies, Breed Societies, Agricultural Colleges, and Research Institutes; also the interest shown in our organisation by the W.D.F.U. I also wish to thank all others, both within and outside of the organisation, who have contributed in so many ways to the well being of the movement. I would give special thanks to the many honorary and advisory members who have done so much to assist the clubs during the past year, and I would appeal to them to give us, during the coming year, even more help if possible. I would express particular thanks to our Dominion Secretary, Mr. S. Freeman, who has spared neither time nor effort in the interest of the movement.

In conclusion, I would stress the fact that difficulties lie ahead of us. Let us seek to overcome them. Let us demonstrate our ability to carry on, and I am certain that we will accomplish much.

(Signed) D. S. ROSS,
Dominion President,
N.Z. Federation of Young Farmers' Clubs (Inc.).

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Reports on Club Activities

WESTERN SOUTHLAND.

Dipton.—Club debate, "Will Russia and the Rest of the United Nations See Eye to Eye When the Axis is Defeated?" Speakers, B. King, B. Sinclair, D. Milligan, C. Whitaker (affirmative); J. M. Crawford, A. W. Mayer, F. Shuttleworth, R. Lindsay (negative). The negative side won the debate by a narrow margin.

Orepuki.—Arrangements for stock judging competition in conjunction with Pahia Show. The proposed Y.F.C. Memorial discussed at length; it was decided to forward a remit to the annual general meeting. Report by delegates to the Otago-Southland Council annual meeting. Vote of thanks accorded to Mr. Harris for his untiring efforts on behalf of the Y.F.C. movement. Mr. McPherson appointed delegate to the council. Address by Mr. C. Aberdeen on "The Winter Feeding of Sheep."

SOUTH OTAGO.

Warepa.—Address by Mr. Craig, District Traffic Manager of Railways, Invercargill, assisted by Mr. Boswell, of the Railway Department. The speakers outlined the progress made by the New Zealand Railways since early days, demonstrated the main points in connection with revenue and expenditure with the aid of charts, and described the three types of signalling in vogue in the New Zealand Railways. It was suggested that farmers could help the war effort by unloading trucks promptly and keeping them on the move. Attention was drawn to the fact that the railways belong to the people, and due care should be exercised when handling Railway property. The remainder of the time was occupied with a travel talk taking in the route from Wellington, up the East Coast to the top of the North Island, and back down to Auckland. John Shanks, jun. moved a hearty vote of thanks to the two gentlemen for the excellent address and the time and effort expended in its preparation.

NORTH OTAGO.

Enfield.—An interesting and instructive talk was given by Mr. F. Mulligan on "Experiences in the Airedale Coal Mine." Mr. Mulligan showed his audience picks and safety lamps, etc., and detailed the risks incurred in mining the valuable mineral.

MID-CANTERBURY.

Hinds.—Y.F.C. Memorial discussed; decided to favour the Auckland proposal to educate sons of deceased members of the Mercantile Marine. Talk on "Farming and Irrigation in Egypt" by Mr. G. Farrell, recently returned from Egypt.

Methven. — Arrangement's for Y.F.C. dog trials on Mr. R. J. Low's property. Five-minute talks for Mr. Dunkley's cup; winner, J. McKendry. Subjects: (1) "Advantages of Liming With and Without Manure"; (2) "How Can the Government Encourage the Growing of an Additional Acreage of Wheat?"

CHRISTCHURCH.

Darfield.—Business meeting. This club has still a very strong membership, but like other clubs is finding it difficult to secure really good attendances. Members should rally round and support their own movement.

NORTH CANTERBURY.

Scargill-Omihi.—Arrangements for next meeting. Captain Croucher to be asked to give a talk on his seafaring career. All members and friends to be urged to attend. Talk by Mr. E. P. Sheer on "Stock Licks, Distemper, and Stock Ailments."

MARLBOROUGH.

Flaxbourne.—Talk by Mr. A. McLeod on "Explosives and Their Uses." At the previous meeting Mr. W. McIsaac gave a talk on "Diseases in Cows, and Stock Troubles Generally."

NELSON.

Dovedale.—Annual meeting. Officers elected: Advisory presidents, Messrs. P. Jordan and F. M. Burnett; chairman, R. Burnett; secretary, R. Y. Hawkes.

SOUTH TARANAKI.

Alton.—Annual meeting. Club decided to make every effort to carry on, and to that end an executive committee of three was elected, consisting of the chairman, secretary, and Mr. C. Palmer. Inquiries to be made regarding insurance of club property. The Pasture-judging Cup was presented to E. W. Burnand.

CENTRAL HAWKE'S BAY.

Takapau.—Instructive address by Mr. N. Tilley on "How to Conduct a Meeting."

Tikokino.—Annual meeting. Decided to carry on with the headquarters of the club at Smedley. Address by Mr. J. W. Palmer, district secretary.

NORTHERN HAWKE'S BAY.

Matapiro.—General business. Interesting and instructive talk by Mr. Callaghan on "General Diseases Affecting Stock During the Past Year." The following officers were elected at the annual meeting: Advisory president, Mr. A. W. Butt; chairman, T. Lamont; secretary, J. G. Martin.

Meeanee.—Impromptu speeches and informal talks.

TE KUITI.

Otorohanga.—Discussion on proposed Y.F.C. Memorial Fund; the following suggested by the club: That a fund be established for the education of the children of members of the Y.F.C., who have served overseas. Mr. McAdams (advisory member) gave a talk on his personal experiences whilst in a hospital devoted to plastic surgery during the last war. He illustrated his talk with photographs.

Paewhenua.—Discussion on the proposed Y.F.C. Memorial Fund. Five-minute prepared addresses by club members to be delivered at the next meeting.

WESTERN BAY OF PLENTY.

Paengaroa.—Final arrangements for debate between Te Puke and Paengaroa clubs, this being the final of the Western Bay of Plenty debating. Mr. Lang, wool-classer, N.Z. Loan and Mercantile Agency, gave an address on "Wool Classing." A field day was held on Mr. G. P. Spratt's property, taking the form of stock-judging competitions. The following acted as judges: Mr. Norman Carter, Whakatane (pigs); Mr. G. F. D. Watson, Te Puke (cattle); Mr. G. P. Spratt, Paengaroa (sheep).

Te Puke.—Discussion regarding the subject of the debating contest: "That Agriculture Offers as Good an Opportunity to Young Men as Does Other Employment."

Waihi High School.—Delegates selected to attend the district meeting at Tauranga. Lengthy discussion on proposed activities for the year; the following were suggested: (1) visit to local farms; (2) visit to top-dressing trials under the Department's supervision; (3) club debates. At a more recent meeting the delegates gave a full report of the business transacted at the district meeting.

EASTERN BAY OF PLENTY.

Waimana.—Report on dance, finance, etc. Teams selected for both debating and stock-judging. Lantern lecture by Mr. J. R. Murray, Department of Agriculture, on "Shade and Shelter on the Farm." A field day was held on Mr. E. P. Woolfield's property, and took the form of lectures and demonstrations dealing with first aid, livestock diseases, etc.

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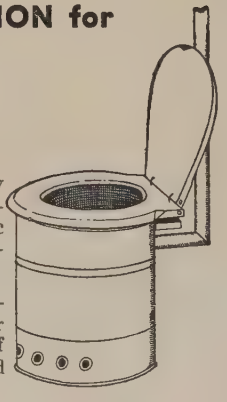

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Health Notes for the Farm

Cancer Is Not Incurable

CANCER can be cured—provided you act in plenty of time.

There is a definite hope of recovery if the disease is detected promptly and treated properly. These words should be underlined in everyone's mind.

Increased medical knowledge, skill in diagnostic methods, and the use of surgery, x-rays, and radium have made treatment today more effective and lasting than ever before.

Fear of Cancer

Few other afflictions in the field of fatal diseases have caused more pain and long-drawn-out suffering to humanity than cancer. And few have baffled medical science so stubbornly, in spite of all-out efforts to find the cause of it. The mere mention of cancer brings an involuntary reaction of dread. So fierce a grip has this word on the imagination that fear of cancer is an ever-present emotion in many men and women, and death from cancer is something one speaks about with suppressed horror.

The basis of this fear is very real. It is estimated that as many people over 40 years of age die of cancer as die of tuberculosis, pneumonia, and typhoid fever combined—and that one woman in seven and one man in ten, of those who reach 40, will die of cancer.

In New Zealand cancer still remains as one of the prime causes of death, next in severity to heart disease. Cancer is a menace to every one. It is insidious in its attack. It does not show itself until it is well developed, and pain is usually one of its final symptoms.

A Malignant Growth

What is cancer? The nearest that science has got to an adequate answer is that cancer is a malignant growth which starts in one place in the body as a result of certain not yet understood changes in the body cells at that point. These changed cells begin to multiply and take the place of the neighbouring healthy cells, which they destroy.

Contributed by the

DEPARTMENT OF HEALTH.

Millions of pounds have been spent in research work, and investigations of research workers year after year would fill a library with volumes about cancer. It has been found that certain conditions produce cancer, but the fundamental cause of cancer remains undiscovered.

Alleviation of Pain

The most positive and valuable outcome of this research, however, has been alleviation of much human suffering. Cancer is not hopeless and it is not incurable. But it must be treated in time.

What are the danger signs—how is it possible to detect cancer? Cancer on the outside of the body, which can be seen or felt, often begins as a wart, mole, lump, or scab. Lumps in the breast are especially suspicious. Cancer may develop from an unhealed wound, or sore, or even an old scar. If you have any of these signs, watch them closely, and if they change in size or appearance, see a doctor at once. Don't wait until they become painful.

Internal cancer is more difficult to detect, though it may be known by signs before any lump is seen or felt. For instance, any irregularities or unusual developments in the normal bodily functions should be immediate cause for suspicion. Avoid constipation, correct chronic indigestion, and on no account neglect haemorrhoids. One of the most common forms of cancer is stomach cancer. It is usually preceded by one or more of these warning symptoms: persistent lack of appetite; persistent indigestion not due to faulty habits of diet; pain after eating; loss of weight. The last two are late symptoms of the disease.

Don't Take a Chance

When any of these signs become apparent, don't waste time about it—see your doctor. They may not necessarily denote cancer, of course, but don't take a chance. Remember that medicines are useless as a cure for cancer. They may relieve pain, but they do not remove the cancer. There is only one way to get rid of it—it must be destroyed either by surgical removal or by radium or x-rays.

Surgery and X-rays

In surgery, it is essential that the knife should remove every vestige of the tumour if the operation is to be successful. It obviously depends on the position of the tumour as to whether this can be done or not, and there are many places in the body where surgery of this kind is impossible.

Certain forms of cancer, and cancer in certain places, can be destroyed more effectively and with less danger to the patient by the use of radium or x-rays. Radium ejects from itself a constant stream of bullets which penetrate the tumour and break up the cells. The x-rays act on the tumour in the same way, and provided all the cells of the tumour can be destroyed by radium or x-ray bullets the disease can be checked. Over the last ten years a great advance has taken place in the technique of this treatment.

A third form of treatment is to plant minute needles containing radium in the tumour, and to leave them there to do their work on the foreign cells over a long period.

The chief hope for relief at present lies in the sufferer discovering his condition far earlier than is usual, and seeking skilled medical advice.

THE Good Neighbour

BY MARY

From Me To You

I THINK I would like to talk to you this month about birthdays. Do you like celebrating the birthdays of your dear ones? In many homes birthdays are just as any other day in the year, but fortunately there are many who realise the wealth of joy that birthday surprises and birthday celebrations can bring to everyone. . . It is a grand way of sharing happiness.

The joy of giving is, I think, the greatest joy of all. What do you do when there is an important birthday near? Do you worry and wonder what you are going to give your friend as a special Gift? I do. I often think about birthdays for weeks before they come along. It is the best way really. Often you will see something in a little out-of-the-way place, that is just exactly what you want for your friend. Gifts can convey so much of the donor's personality to a friend. I think the loveliest birthday present I have ever received was given to me by a very dear friend, who took two years to complete it. It began as an embroidered cushion cover, but it finished up as a dainty picture in a gold frame which is still adorning my bedroom wall. It is only a picture of a small house, set in the midst of a very colourful garden, and on the back my friend wrote "My house of Always-at-home-to-you." Sometimes I think I like the inscription on the back almost as much as I like the picture on the front. But the house still greets me from my primrose wall, and, although this friend of mine is now many miles away, and separated by oceans, I feel I often drop into her little house, and have a chat with her. It is not the expense of this gift that went to my heart—I doubt if it cost her very much at all in the way of money—but it is rich in memories, and in thoughts, for I like to think that every stitch she put into my precious picture was another happy thought for me.

Do you ever think of gifts as people? I do. All the little bits-and-pieces I love so much remind me of those dear ones who gave them to me at different times, and I like to think of my room crowded with those people who are dearest to me.

Have you ever come across that beautiful poem by the English authoress, Grace Crowell, which is called "A Birthday Letter to a Friend"? If you know it, you will want to read it again, and for those of you who have not come across it, here it is:

"Because you are my friend
I long today
To send you some impoverishable gift
Of beauty;
Something glowing and warm
Like the coals of living fires;
Something as cool and sweet
As blue lilies at dawn;
Something as restful and clean
As smooth white sheets at night
When one is very tired;
Something with a taste like spring water
From high places,
Or like the tang of sweet, purple grapes
To the mouth.
But oh my friend
Because I cannot buy those gifts for you
Come go with me,
Out into the little everyday fields,
And let us gather in our baskets,
Like manna—God's gift to us:
The downpouring, dazzling white beauty
Of life itself."

Next time you have a birthday in your family, celebrate. Out with some coloured streamers, make a cake with candles and plan a surprise for the birthday girl. You will be more than rewarded for any trouble you take.

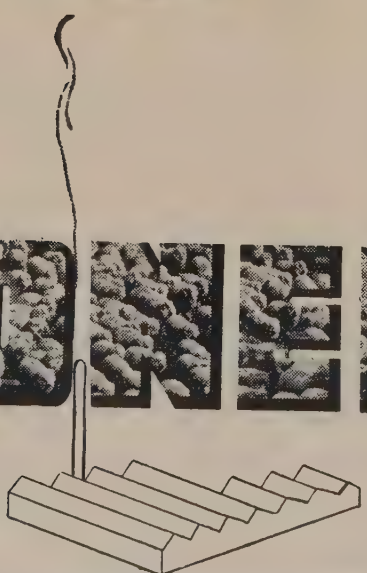
Mary

Mary's "At Home"

HAVE just returned from a holiday, in your Big City. I am keenly interested in our farm, and in our work here, and each day while I was away my thoughts went back to those at home, wondering how they were faring. But isn't it a rest to be rid of the burden of responsibility for a while? We sometimes tell ourselves we cannot be spared, or cannot spare the time, but away from the petty cares of the day, big worries dwindle, and small ones become non-existent. To be able to come and go as one pleases for a couple of weeks is better

Down to the sea in ships....

Salute to the men of the Merchant Marine—unsung heroes of the sea. When Atlantic winds tear spindrift from grey rollers, these men welcome warmth—and that's where ONEHUNGA Blankets are today—on active service. Should you have any difficulty in buying blankets, remember that the ONEHUNGA Mills are weaving for defence. But we join with you in the hope that the clouds will soon roll by and that "ONEHUNGA" will once again be on "active service" only in the homes of New Zealanders.



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than any tonic on the market. Back again, one can put one's shoulder to the wheel with a greater zest. And the welcome one receives proves there is something in the old saying "What is home without a mother?"—**Brynwar, Aramoho.**

IN January of this year I first came across your pages, and I have been inspired many times since by your letters, and those of the Good Neighbours. What beautiful thoughts go out from you all, and how they help—joy from the humorous, and strength from the serious. Something has been gained from each one. At the moment I am thinking particularly of G.M.B.'s letter, in which she quotes from the letter of her sister, "It is such a beautiful world, if only we could live at peace and enjoy it." Yes, the world is beautiful, and full of good, but we must search for it, and take heed when we find it, and in turn pass on our joy for others to share. We are so much in a hurry these days, to make material profit often, that we do not even hear the birds sing—and they still sing as gaily as ever, even if we have cut down nearly all their trees. We do not notice the flowers as we should, neither do we stop to watch the children at play. Again we are in a hurry, and it must be some material gain that is luring us on. "In the hum of the market there is money, but under the cherry tree there is rest."

Our men are away fighting for us all, and for this beautiful country that is ours, so while they are away we must be brave, and work hard and do good. We must put down selfishness—yes, we are selfish, or we would not "panic buy," or hoard, thereby causing others to go short. After all, life is what we ourselves make it, so let us make it worth while for everyone, and when this struggle is over we shall have a better world than we have ever had before. Here and now we must do good with what we have, be it ever so little, and so take a step nearer to our better world. So I would say, always look forward and not back.—**Laverock, Ashhurst.**

DON'T you love reading books that suddenly bring in New Zealand? I do, and recently I seem to have come across quite a number that really have an intelligent reference to our beautiful land. Many years ago, in a best seller, I was saddened and maddened by the hero declaiming, after the heroine had repulsed his advances, "I'll either shoot myself—or go to New Zealand!" As if either contingency was equally damnable!

Today I finished reading "The Rich House," a grand book by Stella Gibbons, where Reenie, after buying "an atlas" and studying it, decides (wise girl) that of all "places belonging to U.K." she will go to New Zealand. "I had a good think before I made up my mind where I'd go. I didn't want anywhere too big and cold, or too little and hot, and I wanted somewhere where the black sounded all right—not nasty tempered, you know, or give you the miseries with grizzling. And after I've read all about all the places I thought 'Last, lone, loveliest'—well, that's the place for me. . . And those Maoris . . . they are ever so good natured, and fond of a joke, too. And wonderful talkers they are, it said in the book. When they weren't fighting, they were talking. Used to practise it, like tennis or the piano. I'd give anything to see geysers too."

Well, it warmed the cockles of my heart to read that, and later to learn that Reenie, having married a prosperous sheepfarmer, ended up with a family of eight healthy children. And though her London mother always referred to her unseen son-in-law as "that pore feller" we can't help thinking he chose well when he married Reenie, who pays such glowing tributes to good old Enzed.—**Molly Malone, Otago.**

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NOW that wool is so hard to obtain many of you will no doubt be very interested in the excellent article entitled "Why not spin your own wool?" which appears on page 71 of this issue.. Specially written for the "Journal" by Mr. J. E. Duncan, readers will find this article has a special appeal under present-day conditions.

A BABY'S LAUGH.

O smile, baby, smile,
For when you smile,
The light o'er your face goes dancing,
Like sunshine over the flowers,
Into the darkened corners,
The cool, sequestered bowers.

But laugh, baby, laugh,
For when you laugh
A silvery, soft wee chuckle
Goes forth into someone's heart,
Shedding a light in darkness,
Brightening someone's part.

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IT is ten to six, tea is over, my bed has been laid out, and darkness is creeping on—not much twilight in the Middle East. I light up a cigarette, and stroll over to one of our wireless trucks. The wireless operator is already seated at the back of the truck, and is listening to the close of a programme from London. A woman is announcing.

"This is London calling, in the African service of the B.B.C. The news follows in just under twenty seconds from now." The time signal "pip" follows—we correct our watches, blaming the dust should they not correspond with London. Silence, then the highlights from the news are given over. "The war in the Pacific—Libya—Russia—in this country." We smile as the Libyan news comes over, for we do feel we have played at least a small part in the victory of the desert. Everywhere the news is good, perhaps a bit "sticky" down in the Pacific, but things are not so bad, and we go off towards our trucks feeling better. The good news soon spreads, and as we tuck ourselves into bed our thoughts go homewards—we are forever thinking of our New Zealand in the Pacific, and now, too, in the war zone.—**R.S.W., Middle East Forces.**

MY dream kitchen was really a description of my own kitchen, and to my mind the most essential thing is having a kitchen built away from the back door, for in the country everyone goes to the back door, and on baking day it is a nuisance.

I have been sitting in the garden, surrounded by beauty, sunshine, and peace. I have been thinking of the wonderful healing to be found in a garden—how many heartaches are hidden there? I have a sister whose son, a New Zealand Rhodes Scholar, is in the British Embassy in Hong Kong. This boy means everything to his mother, for she is alone, and knowing the state of her mind after reading of the horrors of Hong Kong, with the uncertainty as to the fate of her boy, I wrote sympathising with her. And here is her reply: "Chins up! I am remaking a garden out of a wilderness, and I am so tired at night with the heavy work that I sleep like a top, and put my faith in God. It is such a beautiful world, if only we could live at peace and enjoy it. We must all get back to Nature, and the simple things of life."—**G.M.B., Puketapu.**

I AM afraid I have let my writing lapse the last few months, as the local W.W.S.A. has been making camouflage nets, and most of my spare time is taken up in "knotting and netting." At first everyone was complaining of sore fingers from the harsh twine, but after a day or two of painful perseverance, convenient little corns formed in just the right place for pulling. At least I've found it so. It takes twenty-two hours of solid work to make a 14-foot square net, and working in our spare time my sister and I finished one in ten days. Fourteen feet seems a terribly long way to go when one starts, but in no time the net grows to quite unwieldly proportions.—**Khorasbad, Marlborough.**

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Our Competition

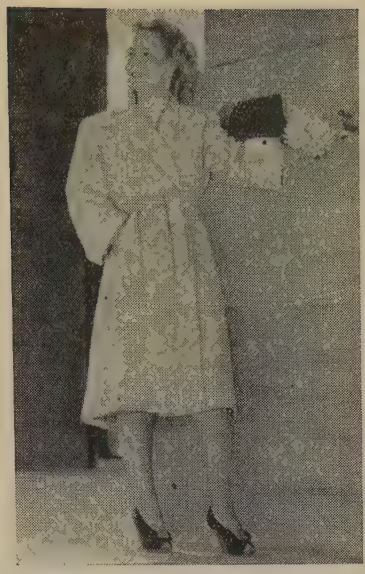
A Problem to Solve

THIS competition has been so interesting, and the entries were valuable, in that they were full of practical and constructive ideas, I think you will agree that "Rainbow," of North Canterbury, has approached the problem in a sensible manner, with "Laurel," Feilding, a close second. I do hope that our correspondent, as a result of the competition entries, gains some practical solution to her problem.

First Prize

BEFORE this problem could be dealt with adequately, it would be necessary to know more about the young man, and how he has spent the 23 years of his life. If he has received a good education and can write a good letter, he will be capable of managing his own affairs, and won't welcome any interference; but if his spelling is hopeless, and his grammar the same, he won't create any desirable impression by floundering in a sea of matrimonial correspondence, and will only make himself an object of ridicule. What are his interests? What hobbies has he developed? How have his leisure moments been spent? Has his home training encouraged him to amuse himself? Then there may be some real, absorbing topic for correspondence which will bring out the best that is in him, even though it may be herd testing, or calf rearing, and far removed from the subject of matrimony, yet it may be the cause of introducing him to the one and only. Social contact is so essential—a little knowledge can be so dangerous, and the more people we know, the more we should understand the frailty of human nature, and the more understanding and sympathetic we should be.

Holiday time for this young man should give Mother her opportunity. If he plans to come home, invite as many young people to your home as you can accommodate, to keep him company, and have parties, picnics, and some shooting with his boy friends so that he will not be over-suspicious of any designs on his freedom. Home will then be a desirable place, and he will want to know the happy people which make it so. And if he plans to spend his holiday in travel, encourage him to visit some of the lovely places in New Zealand. A week at Mount Cook at the Glaciers, or perhaps Waitomo Caves, or an organised tour, where there are plenty of young people. But Mother's part in his plans must not be too obvious, for if she does too much in the game, then she may be responsible for too much later on if the results are not satisfactory. "Man is but the raw material, whereon a woman putteth the finishing touches. The happiest wife is not she that getteth the best husband, but she that maketh the best of what she getteth. There is no factory which turneth out husbands to order."—**Rainbow, North Canterbury.**



Want a new coat? Why not try one like this, worn by June Preisser, the young Metro-Goldwyn-Mayer starlet. It is light beige camel's hair with wide lapels and a tie belt to top a pastel plaid skirt, and yellow woollen sweater to match the chrysanthemum in her hand.

Second Prize

MY district is a very friendly one, and I cannot imagine any young farmer who is prepared to be a good neighbour being left in the cold by

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residents who are so kind-hearted, friendly, and hospitable. The Young Farmers' Clubs may be in recess, as are most of the Sports Clubs, but if your correspondent's son went to church, I am sure he would soon be invited to hômes where he could make social contacts. Regarding matrimonial opportunities, I think that depends on the young man, and if he is as nice as his mother portrays him, I think Cupid would be quite willing to give him a helping hand if he himself steps out a bit. By "stepping out" I mean being interested in the affairs of his district—Home Guard, Farmers' Union, etc.—and in this way make the acquaintance of the fathers and brothers who in most country districts are always ready to extend the hand of friendship to a lonely fellow. If the young man is not keen about stepping out in this manner, tell his mother to write to the President of the Women's Institute, who would, I am sure, treat a mothers' request with confidence and understanding, and do her best to introduce him to some young people, and the next move would be up to him if he is desirous of furthering the friendships.—**Laurel, Feilding.**

IF only "The Journal of Agriculture" could find space—and time—for a Young Penfriends' Corner, then lonely boys and girls on farms could make friends with one another so easily. I know, personally, a girl helping on the farm at home, who persuaded her mother to allow her to ask a boy pen-friend to spend his holidays with them. And a very likable young man he turned out to be; and as he and the girl had already—by correspondence — discovered that they had much in common, they got on extremely well together. No marriage bells yet . . . but who knows.

So that, if our first young man in question is lucky

A man's job...and only a woman's strength

Reborn...the spirit of pioneer parents. Women of other days stood shoulder to shoulder with their men, at the plough, in the palisade. Today, their daughters stand beside their men, too, in the hour of need. Doing a man's job.

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enough to get in touch with a nice girl correspondent having broad-minded, understanding parents, there is no reason in the world why this should not lead to something worth while. After all, even if the boy and girl do not become more than just friends—well, he'll be sure to meet the girl's girl-friends, and here is where he might so easily meet his "fate." Then, again, if through the penfriends' club, the boy gets in touch with farmers' boys, and is invited to stay with them, then there's usually a sister or two —and girl friends in plenty.

I think this—correspondence—is one practical solution to the problem of lonely young men—or women—on farms. If the "Journal" cannot see its way clear to run a Penfriends' Club, then the young people should take advantage of those already run of several daily and weekly newspapers. — **Piki-Arero, Taranaki.**

I THINK the young man's mother is giving herself needless worry. After all, he is only twenty-three, and has many years before him before there will be any real fear of being left a bachelor, and if he is what his mothers says he is, then I don't think he'll need any help when the time comes for him to think about taking a wife. Perhaps he does only manage to get to an odd dance occasionally, but I don't think he would be taking stock of the young ladies on these occasions, and judging as to which one would suit him, etc. He will probably meet his lady love on some unexpected occasion, and as I said before, he won't need any help then. You know the old saying, "Faint heart never won fair lady." One must be careful not to hurt the young man's feelings. Perhaps his friends, thinking to do him a kindness, may help him to meet a girl they think will suit him, and maybe she will, but it may be overdone, and what might have turned out to be a good match may be spoiled, for no young person with any self-respect would like to think that others were doing their courting for them. I say, leave the young man alone, and don't worry about him—he has plenty of time in the next ten years. Perhaps the mother of this young man has met many elderly farmer bachelors, but I think she would find there are as many bachelors in the town on an average of the population. So mother, let the boy have a few more years, and maybe he will surprise you.—**Rural, Waihi.**

Competitions

AUGUST COMPETITION:

You won't forget, will you, that this month's competition, which closes on SEPTEMBER 15, is for the best idea on how to celebrate when peace is declared.

SEPTEMBER COMPETITION:

Have you a "Milestone" in your life? I think most of us have some event which marks the beginning of a new phase of our life, and will always remain bright in our memory. Let us share your "Milestones"—they will make interesting reading.

This competition closes on the 15th OCTOBER, and two prizes will be awarded: First 10/- and second 5/-.

"MARY,"
C/o "Journal of Agriculture,"
P.O. Box 3004,
Wellington.

ALL mothers sympathise with this problem, and as one who has experienced life away in the country I would like to have my little say. Don't isolate your children for long periods if you can do anything about it. If the young man is friendly himself, he should easily find friends in the small community about him. For a naturally shy and reserved person to make friends, it is more difficult though. Having been painfully shy myself once, I know all about it, and would suggest that if one cultivates a friendly curiosity about everything, shyness can soon be forgotten. People are usually ready to respond to a sympathetic and interested listener. Then we either look at marriage from a spiritual or a materialistic standpoint. This mother desires her son to meet the right type of girl, so she must be a person with ideals. Whatever the son's attitude towards marriage, it is important that he should have his chance to meet friends of the opposite sex of the same social standing as himself. But he must do something about it himself. He must be sociable, sympathetic, and a good listener, and a truly good neighbour, ready to help those about him as opportunity offers. So that he becomes one of those popular people who are asked out, passed on from friend to friend, whom people want to meet and know. I would say to the boy, be friendly, go out and meet those you can, and remember just now it is your country that counts. —**Tiggety Boo, Kati Kati.**

New Zealanders — to a man, woman and child —realise that the War Services have first call on everything they need. Dry batteries play an important part in the work of the men manning our anti-aircraft defences. In the Army, Navy, Air Force and other war services, dry batteries are needed for torches, radios, and many other uses. We know that you, like your local retailer, will remember these facts if you experience a temporary shortage of Eveready Batteries.

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Mary's Mixing Bowl

Favourite Recipes

THE prize of 2/6 for the best recipe is awarded to "Roundabout," K.C., for the following entry:—

BOTTLED MEAT.

Pack diced fresh beef or mutton, with fat removed, into your preserving jars, and add one dessertspoon salt to each quart jar. Place lids on jars, but do not screw down. Put jars into your sterilising dish, and bring water up to the necks of jars (i.e., stand jars up to their necks in water). Bring to boil and sterilise at boiling point for three hours. Lift jars out and immediately screw tightly. This meat is now a standby for a pie or to use just cold. Delicious with salads.—**"Roundabout," K.C.**

PORK BRAWN.

Use the two front pieces of a pig's head, salt it for a few hours, and well wash in warm water. Boil four hours, with a few pieces of pork, in 2½ pints of cold water. Remove bones, cut meat into small pieces, and flavour with 1½ teaspoonfuls ground nutmeg, ½ teaspoon pepper, 1 good dessertspoon salt. Mix thoroughly and put into dishes to set.—**"Nanna," Riwaka.**

EGGLESS BATTER.

This makes a good crisp batter for fish when eggs are scarce.

Sift one cup of self-raising flour and one teaspoon of custard powder into a bowl, add salt and pepper to taste, and mix to the right consistency with water or milk. One dessertspoon of sugar added to the mixture makes a batter for fritters or pancakes.—**"Florence Gee," Timaru.**

DELICIOUS COFFEE.

To one cup of bran put one teaspoon of treacle, and put to warm in a slow oven. Keep stirring occasionally.

Your Best Recipe.

THE "Mixing Bowl" awards a prize of 2/6 each month to the best recipe received. This month's competition closes on SEPTEMBER 15. Address your entry to the "Mixing Bowl," c/o "Journal of Agriculture," P.O. Box 3004, Wellington.

After about an hour, if a nice golden brown, take out and roll it on a piece of paper (this makes it lovely and fine), and put in airtight jars or tins. If the oven is too hot it will burn.

If made with milk in the usual way it is much nicer.—**"Scotch Thistle," Ashburton.**

PICKLED MEAT.

Half fill a benzine tin with water, ½ cup sugar, 2 teaspoons saltpetre, enough salt to float an egg (about 2 lbs. coarse salt). Cut up meat into convenient pieces and boil three to six

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minutes. Place in a cool place with weight on top to keep meat under.

Cook as usual when needed.—"Edna."

QUEEN CAKES.

6 oz. flour, 1 oz. currants, 1 oz. chopped lemon peel, 3 eggs, 1 teaspoon of baking powder, ¼ lb. butter, ¼ lb. sugar, pinch of salt.

Beat butter and eggs well together, in a bowl. Add flavouring, then eggs one by one, beating after addition of each egg. Have flour and baking powder ready sifted. Take some of this flour and flour the fruit well. Stir this in and bake for 15 to 20 minutes.

SHORTBREAD.

4 oz. butter, 2 oz. icing sugar, 2 oz. cornflour, 6 oz. flour.

Beat butter, cornflour, and icing sugar to a cream. Stir in flour, turn out and knead on a board. Roll out, cut into slices, and bake in a moderate oven.

WHITE SAUCE.

½ pint of milk, salt, and pepper, lump of butter, 1 dessertspoonful of flour.

Heat the milk in the saucepan, stir the flour to a thick creamy paste with a little milk, and when milk in saucepan begins to boil, pour in quickly. Place in a saucepan and cook gently for 3 to 4 minutes.

RICE CUSTARD.

2 oz. rice, 1 egg, 1 pint milk, sugar.

Heat the milk and add the washed rice. Add beaten up egg, stirring in a little butter. Put into a buttered pie-dish, add grated nutmeg, cook in bottom of a moderate oven.

CORNFLOUR MOULD.

1 tablespoon flour, ½ pint milk.

Mix cornflour with a little cold milk, heat the rest of the milk till it boils, then pour this into the bowl containing cornflour paste. Stir, add a little sugar, and a little essence of vanilla. Put back on the fire and cook for 5 minutes. Pour into cold dish, let set, then turn out.

FELIXTOWE TART.

4 oz. of cornflour or 4 of semolina, 4 oz. of flour, yolk of 1 egg, 1 teaspoon baking powder, 3 oz. of butter, ¼ pint of milk, 1 tablespoon of sugar.

Make into a light dough. Roll out into a circle about ½ inch thick. Knead edges and bake in a hot oven. When cold spread with stewed fruit or jam. Make a meringue with stiffly beaten white of egg, and 2 tablespoons of sugar. Spread meringue over jam and bake a golden brown.

SHREWSBURY BISCUITS.

7 oz. of flour, 6 oz. sugar, ½ teaspoon of ground cinnamon, 1 egg, ¼ lb. butter.

Sift all dry ingredients into a basin, and rub in butter. Bind together with beaten egg—a little milk may be needed. Knead on a board 1-8 inch thick. Cut and put together with jam, and bake a golden brown.

WALNUT BREAD.

4 cups of wheatmeal, 1 cup walnuts, 2 cups milk, 1 tablespoon butter, 1½ teaspoons soda, 1 cup sugar, 1 cup raisins, 2 tablespoons treacle, 2 teaspoons cream of tartar.

Bake one hour in a billy with the lid on, or for half an hour in greased cocoa tins

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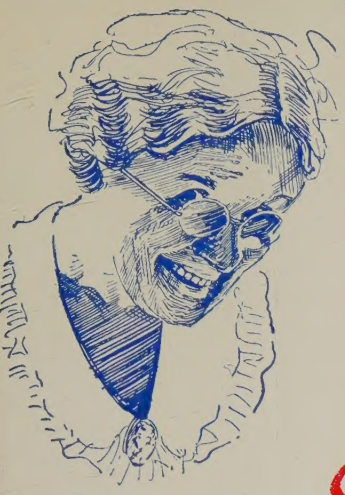

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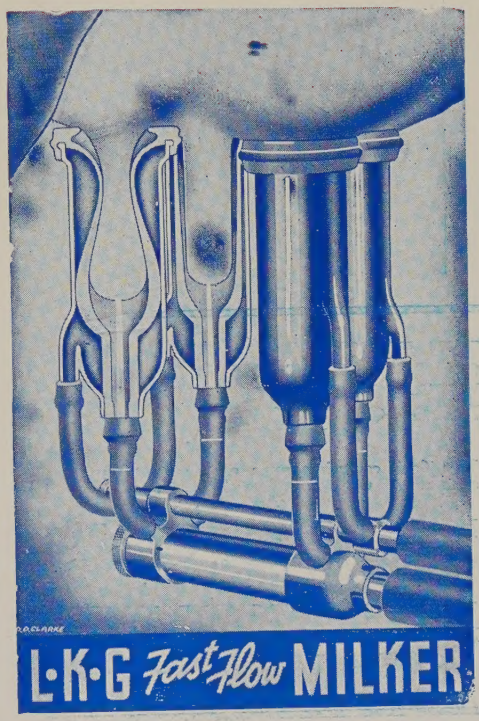

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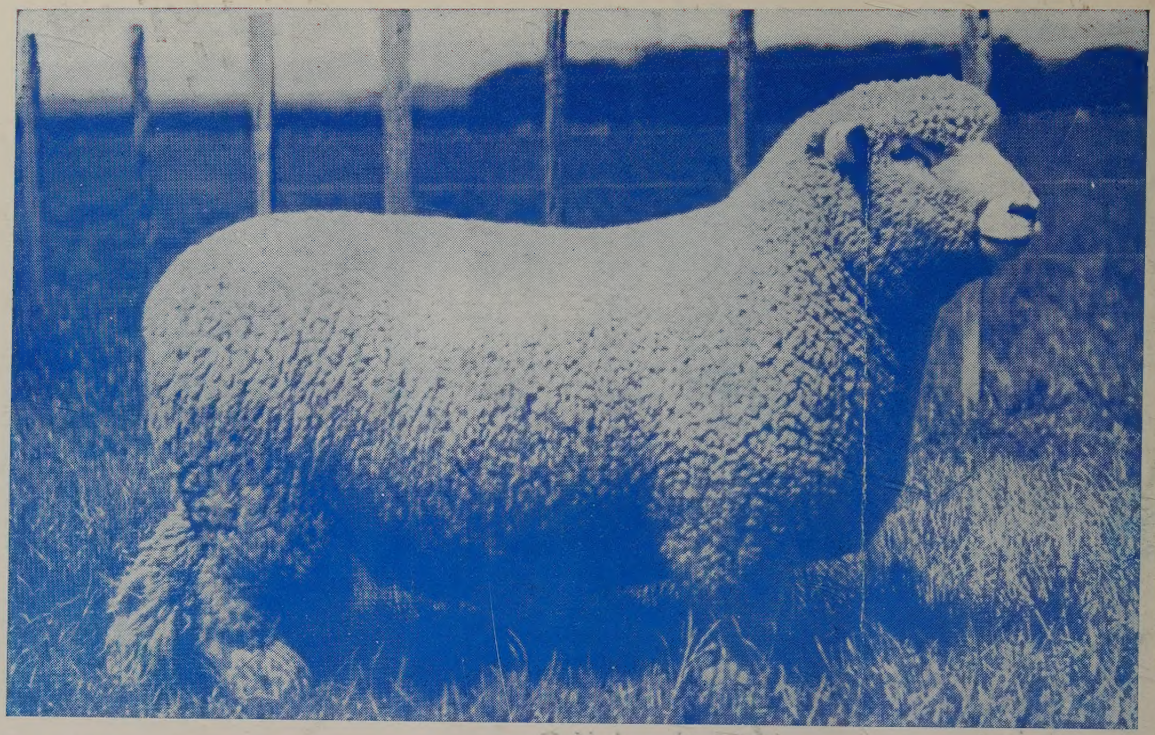

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